

## SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: DAWN GARRETT Examiner #: 76107 Date: 10/11/2002  
 Art Unit: 1774 Phone Number 30 5-0788 Serial Number: 09/934002  
 Mail Box and Bldg/Room Location: CP3 11D30 Results Format Preferred (circle): PAPER DISK E-MAIL

If more than one search is submitted, please prioritize searches in order of need.

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: LIGHT EMITTING DEVICE

Inventors (please provide full names): SATOSHI SEO

Earliest Priority Filing Date: 8/22/2000 (JAPAN 2000-251683)

\*For Sequence Searches Only\* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.

Please search attached 2 polymer structures

(not much close)

## \*\*\*\*\*STAFF USE ONLY\*\*\*\*\*

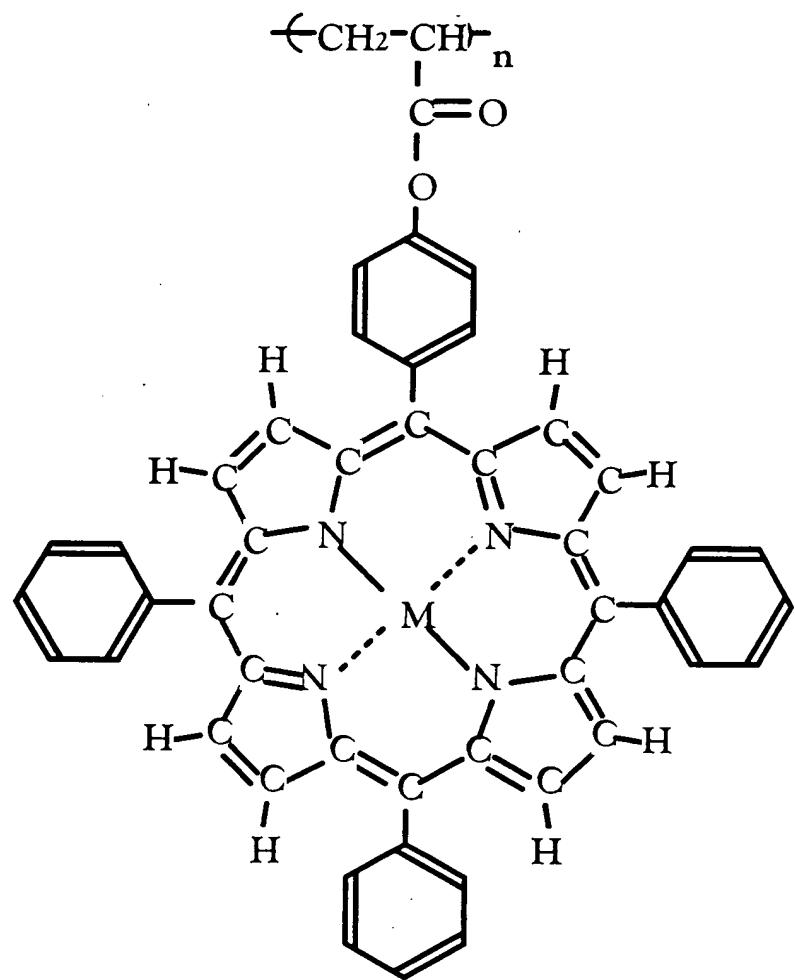
Searcher: EZ

## Type of Search

## Vendors and cost where applicable

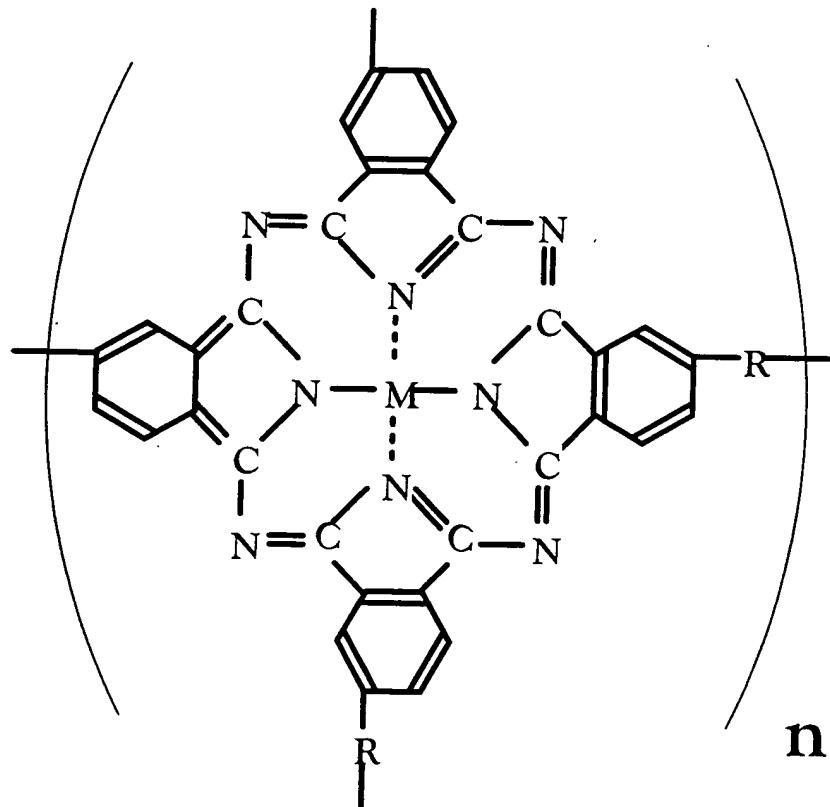
NA Sequence (#)        STN        \$ 80.29AA Sequence (#)        Dialog       Structure (#) ✓ (2) Questel/Orbit       Bibliographic ✓ (and) Dr. Link       Litigation        Lexis/Nexis       Fulltext        Sequence Systems       Patent Family        WWW/Internet       Other        Other (specify)       Date Completed: 10-15-02Searcher Prep & Review Time: 5Clerical Prep Time:       Online Time: 60

1. A light emitting device comprising:  
at least an organic EL element;  
a thin film comprising a polymer material in the organic EL element,  
wherein the polymer material is expressed by



wherein M indicates a bivalent transition series element,  
wherein n denotes a polymerization degree (n = an integer  
of 2 or larger).

2. A light emitting device comprising:  
at least an organic EL element;  
a thin film comprising a polymer material in the organic EL element,  
wherein the polymer material is expressed by



wherein R indicates one selected from the group consisting of a substituent containing a carbonyl group, a substituent containing a benzene ring, and an unsaturated-chain-type substituent containing olefin double bond,

wherein M indicates a bivalent transition series element.

wherein  $n$  denotes a polymerization degree ( $n =$  an integer of 2 or larger).

=> file reg

FILE 'REGISTRY' ENTERED AT 22:05:11 ON 15 OCT 2002  
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STRUCTURE FILE UPDATES: 14 OCT 2002 HIGHEST RN 461382-59-2  
DICTIONARY FILE UPDATES: 14 OCT 2002 HIGHEST RN 461382-59-2

TSCA INFORMATION NOW CURRENT THROUGH MAY 20, 2002

Please note that search-term pricing does apply when  
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Crossover limits have been increased. See HELP CROSSOVER for details.

Experimental and calculated property data are now available. See HELP  
PROPERTIES for more information. See STNote 27, Searching Properties  
in the CAS Registry File, for complete details:  
<http://www.cas.org/ONLINE/STN/STNOTES/stnotes27.pdf>

=> d his

(FILE 'HOME' ENTERED AT 21:13:27 ON 15 OCT 2002)

FILE 'LREGISTRY' ENTERED AT 21:13:35 ON 15 OCT 2002  
E PHTHALOCYANINE/CN

L1 1 S E3  
L2 11 S 13560/RID

FILE 'REGISTRY' ENTERED AT 21:15:28 ON 15 OCT 2002  
E PHTHALOCYANINE/CN

L3 1 S E6  
L4 18133 S 13605/RID  
L5 12673 S L4 AND (T1 OR T2 OR T3)/PG  
L6 536 S L5 AND PMS/CI

FILE 'HCA' ENTERED AT 21:21:38 ON 15 OCT 2002

L7 476 S L6  
L8 71967 S EL OR E(W)L OR (ELECTRO OR ORG# OR ORGANO#) (2A)LUM!N? O  
L9 3 S L7 AND L8  
L10 235931 S CROSSLINK? OR CROSS?(2A)LINK?  
L11 9 S L7 AND L10  
L12 78459 S STAR OR STARS OR STARRED OR STARRING# OR STARBURST? OR  
L13 1 S L7 AND L12  
L14 10 S (L11 OR L13) NOT L9

FILE 'LREGISTRY' ENTERED AT 21:29:27 ON 15 OCT 2002

L15 STR 574-93-6

L16 15 S L15  
L17 198 S 9832/RID

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E POLYACRYLIC/PCT  
L19 267107 S E3  
L20 76 S L18 AND L19

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L21 55 S L20  
L22 0 S L21 AND L8

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FILE 'REGISTRY' ENTERED AT 22:05:11 ON 15 OCT 2002

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FILE COVERS 1907 - 10 Oct 2002 VOL 137 ISS 16  
FILE LAST UPDATED: 10 Oct 2002 (20021010/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

CAS roles have been modified effective December 16, 2001. Please check your SDI profiles to see if they need to be revised. For information on CAS roles, enter HELP ROLES at an arrow prompt or use the CAS Roles thesaurus (/RL field) in this file.

=> d 121 1-55 ti

L21 ANSWER 1 OF 55 HCA COPYRIGHT 2002 ACS  
TI Synthesis of a fluorescent molecularly imprinted polymer and its recognition property for histamine

L21 ANSWER 2 OF 55 HCA COPYRIGHT 2002 ACS

TI Recognition of histamine by a molecularly imprinted polymer based on zinc(II)-protoporphyrin as the fluorescent functional monomer

L21 ANSWER 3 OF 55 HCA COPYRIGHT 2002 ACS

TI Molecularly imprinted polymers with metalloporphyrin-based molecular recognition sites coassembled with methacrylic acid

L21 ANSWER 4 OF 55 HCA COPYRIGHT 2002 ACS

TI Application of the Freundlich adsorption isotherm in the characterization of molecularly imprinted polymers

L21 ANSWER 5 OF 55 HCA COPYRIGHT 2002 ACS

TI Efficient Photocurrent Generation in Novel Self-Assembled Multilayers Comprised of [60]Fullerene-Cationic Homooxacalix[3]arene Inclusion Complex and Anionic Porphyrin Polymer

L21 ANSWER 6 OF 55 HCA COPYRIGHT 2002 ACS

TI Novel porphyrin-labelled poly(N-isopropylacrylamides): syntheses from bromoalkyl-containing prepolymers and physicochemical properties

L21 ANSWER 7 OF 55 HCA COPYRIGHT 2002 ACS

TI Molecularly Imprinted Polymer as 9-Ethyladenine Receptor Having a Porphyrin-Based Recognition Center

L21 ANSWER 8 OF 55 HCA COPYRIGHT 2002 ACS

TI Syntheses of water-soluble polymeric metalloporphyrin complexes and their interaction with DNA

L21 ANSWER 9 OF 55 HCA COPYRIGHT 2002 ACS

TI Synthesis and structure of vinylporphyrin metal complexes and their copolymerization. Spectral luminescence properties of Zn copolymers in solution

L21 ANSWER 10 OF 55 HCA COPYRIGHT 2002 ACS

TI Mimicry of peroxidase by co-immobilization of 1-allylimidazole and hemin on N-isopropylacrylamide-based hydrogel

L21 ANSWER 11 OF 55 HCA COPYRIGHT 2002 ACS

TI Pursuit of vinyl-type network formation processes by ESR. Evaluation of microheterogeneous structure in network polymer by using polymer spin probe

L21 ANSWER 12 OF 55 HCA COPYRIGHT 2002 ACS

TI Immobilized photosensitizers for solar photochemical applications

L21 ANSWER 13 OF 55 HCA COPYRIGHT 2002 ACS

TI Synthesis and photoinduced electron transfer of pyromellitimide-linked porphyrin in constrained hydrophobic environment of unimer micelle

L21 ANSWER 14 OF 55 HCA COPYRIGHT 2002 ACS

TI synthesis of hydroxyphenylporphyrin derivatives as photosensitizers

L21 ANSWER 15 OF 55 HCA COPYRIGHT 2002 ACS

TI Electrocatalytic activity of polymerized metalloporphyrin for reduction of oxygen

L21 ANSWER 16 OF 55 HCA COPYRIGHT 2002 ACS

TI Molecularly imprinted affinity media using a metalloporphyrin derivative

L21 ANSWER 17 OF 55 HCA COPYRIGHT 2002 ACS

TI Absorption and fluorescence spectra of solutions of zinc 5-(4-vinylphenyl)-10,15,20-triphenylporphyrin-methyl methacrylate copolymers

L21 ANSWER 18 OF 55 HCA COPYRIGHT 2002 ACS

TI Photophysical behavior of zinc(II) tetraphenylporphyrin covalently incorporated in a cholesterol-bearing polymethacrylate

L21 ANSWER 19 OF 55 HCA COPYRIGHT 2002 ACS

TI Mimicry of peroxidase by immobilization of hemin on N-isopropylacrylamide-based hydrogel

L21 ANSWER 20 OF 55 HCA COPYRIGHT 2002 ACS

TI Spectral luminescence properties of zinc 5-(4-vinylphenyl)-10,15,20-triphenylporphyrin-methyl methacrylate copolymers

L21 ANSWER 21 OF 55 HCA COPYRIGHT 2002 ACS

TI Photoinduced Electron Transfer to Methylviologen from Zinc(II) Tetraphenylporphyrin Compartmentalized in Unimer Micelles of Amphiphilic Polyelectrolytes

L21 ANSWER 22 OF 55 HCA COPYRIGHT 2002 ACS

TI Long-Lived Porphyrin Cation Radicals Protected in Unimer Micelles of Hydrophobically-Modified Polyelectrolytes

L21 ANSWER 23 OF 55 HCA COPYRIGHT 2002 ACS

TI Optical switching in polymer gels

L21 ANSWER 24 OF 55 HCA COPYRIGHT 2002 ACS

TI Study of energy transfer between porphyrin and chlorin grafted on polystyrene

L21 ANSWER 25 OF 55 HCA COPYRIGHT 2002 ACS

TI Hysteretic behavior and irreversibility of polymer gels by pH change

L21 ANSWER 26 OF 55 HCA COPYRIGHT 2002 ACS

TI Potential use of polymer gels in the monitoring of waste water

L21 ANSWER 27 OF 55 HCA COPYRIGHT 2002 ACS

TI Photophysical Behavior of Zinc(II) Tetraphenylporphyrin in Highly Constraining Microenvironments. Anomalously Long-Lived

Excited-Triplet in the Hydrophobic Clusters of Amphiphilic Polysulfonates

L21 ANSWER 28 OF 55 HCA COPYRIGHT 2002 ACS  
TI Synthesis and copolymerization of vinyl cobalt(III)porphyrins

L21 ANSWER 29 OF 55 HCA COPYRIGHT 2002 ACS  
TI Anomalously Blue-Shifted Fluorescence and Phosphorescence of Zinc(II) Tetraphenylporphyrin in Highly Constraining Microenvironments in Hydrophobically Modified Polysulfonates

L21 ANSWER 30 OF 55 HCA COPYRIGHT 2002 ACS  
TI Phase transition in polymer gels due to local heating by illumination of light

L21 ANSWER 31 OF 55 HCA COPYRIGHT 2002 ACS  
TI Enormously long triplet lifetime of zinc(II) tetraphenylporphyrin incorporated as a pendant of a liquid crystalline polymethacrylate based on cholesterol mesogens

L21 ANSWER 32 OF 55 HCA COPYRIGHT 2002 ACS  
TI Anomalous behavior of triplet-excited zinc(II) tetraphenylporphyrin moieties compartmentalized in the hydrophobic cluster of pendant cyclododecyl groups in an amphiphilic polyelectrolyte

L21 ANSWER 33 OF 55 HCA COPYRIGHT 2002 ACS  
TI Laser-pulse initiated polymerization of acrylamide in the presence of compartmentalized photosensitizers and sulfonium salts

L21 ANSWER 34 OF 55 HCA COPYRIGHT 2002 ACS  
TI Compartmentalization of zinc(II) tetraphenylporphyrin in a hydrophobic microdomain of an amphiphilic polyelectrolyte: a physicochemical model of biological metalloporphyrin systems

L21 ANSWER 35 OF 55 HCA COPYRIGHT 2002 ACS  
TI Electrostatographic magnetic toners

L21 ANSWER 36 OF 55 HCA COPYRIGHT 2002 ACS  
TI Phase transition in polymer gels induced by visible light

L21 ANSWER 37 OF 55 HCA COPYRIGHT 2002 ACS  
TI Porphyrins containing vinyl unsaturation

L21 ANSWER 38 OF 55 HCA COPYRIGHT 2002 ACS  
TI Synthesis of copolymers from a nickel complex of vinylporphyrin with methyl methacrylate and acrylonitrile

L21 ANSWER 39 OF 55 HCA COPYRIGHT 2002 ACS  
TI Polymer-porphyrin metal complexes for ferromagnetic materials

L21 ANSWER 40 OF 55 HCA COPYRIGHT 2002 ACS  
TI Polymeric iron (II) porphyrin complexes bonded to liposomes as

reversible oxygen adsorbents

L21 ANSWER 41 OF 55 HCA COPYRIGHT 2002 ACS  
TI Magnetic properties of polymers with branches having paramagnetic properties

L21 ANSWER 42 OF 55 HCA COPYRIGHT 2002 ACS  
TI Polymerized liposome/lipid Heme as an oxygen transporter under physiological conditions

L21 ANSWER 43 OF 55 HCA COPYRIGHT 2002 ACS  
TI Preparation of porphyrin-phosphocholine polymers as potential drugs

L21 ANSWER 44 OF 55 HCA COPYRIGHT 2002 ACS  
TI Synthesis of polymerizable and amphiphilic (porphinato)irons and their copolymers with polymerizable phospholipid

L21 ANSWER 45 OF 55 HCA COPYRIGHT 2002 ACS  
TI Preparation of 5-(hydroxymethyl)furan

L21 ANSWER 46 OF 55 HCA COPYRIGHT 2002 ACS  
TI Oriented fixation of synthetic heme complexes in phospholipid bilayer membranes: electrooptical measurement

L21 ANSWER 47 OF 55 HCA COPYRIGHT 2002 ACS  
TI Preparation and properties of magnetically-interacting polymer with copper(II) and vanadyl(II) porphyrins

L21 ANSWER 48 OF 55 HCA COPYRIGHT 2002 ACS  
TI Amphiphilic and polymerizable porphyrins and their copolymerization with phospholipid: oriented fixation of porphyrins in bilayer membrane

L21 ANSWER 49 OF 55 HCA COPYRIGHT 2002 ACS  
TI Copolymers of hemin and vinyl monomers as cyanide ion exchangers: modifications of the ion exchange properties by introduction of acrylamide residues

L21 ANSWER 50 OF 55 HCA COPYRIGHT 2002 ACS  
TI Hemin copolymerization with vinyl monomers of potential use in artificial hemoglobins

L21 ANSWER 51 OF 55 HCA COPYRIGHT 2002 ACS  
TI Metal complex polymers having gas absorption desorption capacities

L21 ANSWER 52 OF 55 HCA COPYRIGHT 2002 ACS  
TI Radical copolymerization of proto-hemin dimethyl ester

L21 ANSWER 53 OF 55 HCA COPYRIGHT 2002 ACS  
TI Vinyl radical-containing chlorophyll derivative

L21 ANSWER 54 OF 55 HCA COPYRIGHT 2002 ACS

TI Electrical conductivity of some organic materials containing metals  
L21 ANSWER 55 OF 55 HCA COPYRIGHT 2002 ACS  
TI Graft copolymerization onto blood

=> d 121 1,2,3,12,14,23,30,36 cbib abs hitstr hitrn

L21 ANSWER 1 OF 55 HCA COPYRIGHT 2002 ACS  
137:201656 Synthesis of a fluorescent molecularly imprinted polymer and its recognition property for histamine. Dong, He; Tong, Ai-Jun; Li, Long-Di (Department of Chemistry, Tsinghua University, Beijing, 100084, Peop. Rep. China). Gaodeng Xuexiao Huaxue Xuebao, 23(6), 1018-1021 (Chinese) 2002. CODEN: KTHPDM. ISSN: 0251-0790. Publisher: Gaodeng Jiaoyu Chubanshe.

AB By using histamine as the template mol., methacrylic acid as the functional monomer, ethylene glycol dimethacrylate as the crosslinking agent, and zinc (II)-protoporphyrin as the functional monomer, a new kind of molecularly imprinted polymer (MIP) which may emit fluorescence was synthesized. Its binding property was evaluated with a batch adsorption and a column method. The results of both methods indicate that the recognition of histamine with the MIP is superior to that of the non-MIP.

IT 449732-76-7P, Ethylene glycol dimethacrylate-methacrylic acid-zinc protoporphyrin copolymer

(synthesis of fluorescent molecularly imprinted zinc protoporphyrin-contg. polymer and recognition property for histamine)

RN 449732-76-7 HCA

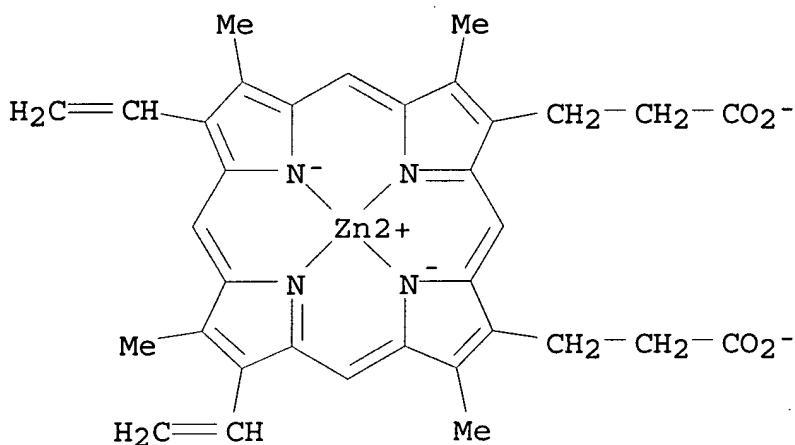
CN Zincate(2-), [7,12-diethenyl-3,8,13,17-tetramethyl-21H,23H-porphine-2,18-dipropanoato(4-)-.kappa.N21,.kappa.N22,.kappa.N23,.kappa.N24]-, dihydrogen, (SP-4-2)-, polymer with 1,2-ethanediyl bis(2-methyl-2-propenoate) and 2-methyl-2-propenoic acid (9CI) (CA INDEX NAME)

CM 1

CRN 15442-64-5

CMF C34 H30 N4 O4 Zn . 2 H

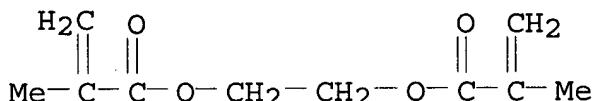
CCI CCS



● 2 H<sup>+</sup>

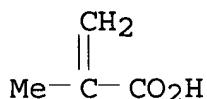
CM 2

CRN 97-90-5  
CMF C10 H14 04



CM 3

CRN 79-41-4  
CMF C4 H6 O2



IT **449732-76-7P**, Ethylene glycol dimethacrylate-methacrylic acid-zinc protoporphyrin copolymer  
(synthesis of fluorescent molecularly imprinted zinc protoporphyrin-contg. polymer and recognition property for histamine)

137:194711 Recognition of histamine by a molecularly imprinted polymer based on zinc(II)-protoporphyrin as the fluorescent functional monomer. Dong, He; Tong, Aijun (Department of Chemistry, Tsinghua University, Beijing, 100084, Peop. Rep. China). Analytical Sciences, 17(Suppl.), a295-a298 (English) 2001. CODEN: ANSCEN. ISSN: 0910-6340. Publisher: Japan Society for Analytical Chemistry.

AB A molecularly imprinted polymer (MIP) was prep'd. against histamine using zinc(II)-protoporphyrin (ZnPP) as the fluorescent functional monomer. Fluorescence of the MIP is quenched in the presence of histamine, whereas such effect is much less with the nonimprinted polymer (NMIP) or the MIP in the presence of a structurally related mol., imidazole. The assocn. const. for the binding of histamine to the MIP is 4500 M-1 and 269 M-1 sep. in two different concn. ranges of histamine. Detn. of unbound histamine by UV-visible absorption method showed the same results as fluorescence detection of the MIP suspended soln., suggesting that the fluorescence quenching of the MIP is due to the binding of histamine to the recognition site of ZnPP-based MIP.

IT 449732-76-7P

(recognition of histamine by a molecularly imprinted polymer based on zinc(II)-protoporphyrin as the fluorescent functional monomer)

RN 449732-76-7 HCA

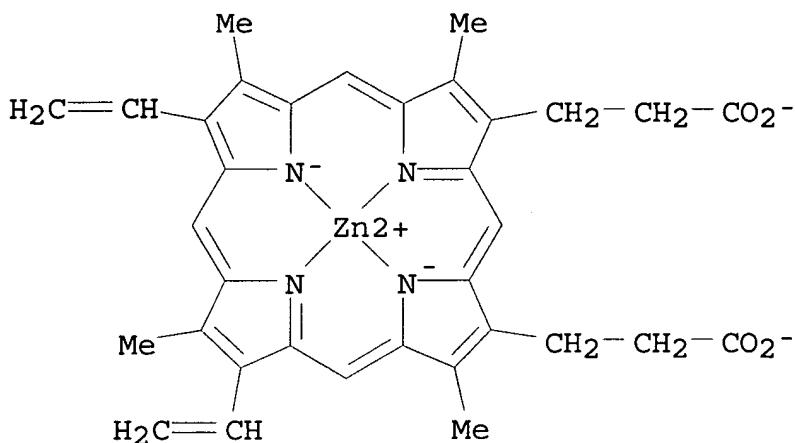
CN Zincate(2-), [7,12-diethenyl-3,8,13,17-tetramethyl-21H,23H-porphine-2,18-dipropanoato(4-)-.kappa.N21,.kappa.N22,.kappa.N23,.kappa.N24]-, dihydrogen, (SP-4-2)-, polymer with 1,2-ethanediyl bis(2-methyl-2-propenoate) and 2-methyl-2-propenoic acid (9CI) (CA INDEX NAME)

CM 1

CRN 15442-64-5

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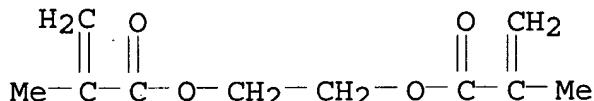
CCI CCS



● 2 H<sup>+</sup>

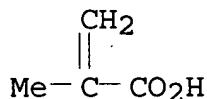
CM 2

CRN 97-90-5  
CMF C10 H14 04



CM 3

CRN 79-41-4  
CMF C4 H6 O2



TT 449732-76-7P

(recognition of histamine by a molecularly imprinted polymer based on zinc(II)-protoporphyrin as the fluorescent functional monomer)

molecular recognition sites coassembled with methacrylic acid. Takeuchi, Toshifumi; Mukawa, Takashi; Matsui, Jun; Higashi, Miho; Shimizu, Ken D. (Laboratory of Synthetic Biochemistry Faculty of Information Sciences, Hiroshima City University, Asaminami-ku, Hiroshima, 731-3194, Japan). Analytical Chemistry, 73(16), 3869-3874 (English) 2001. CODEN: ANCHAM. ISSN: 0003-2700. Publisher: American Chemical Society.

AB A diastereoselective molecularly imprinted polymer (MIP) for (-)-cinchonidine, PPM(CD), was prep'd. by the combined use of methacrylic acid and vinyl-substituted zinc(II) porphyrin as functional monomers. Compared to MIPs using only methacrylic acid or zinc porphyrin as a functional monomer, PM(CD) and PP(CD), resp., PPM(CD) showed higher binding ability for (-)-cinchonidine in chromatog. tests using the MIP-packed columns. Scatchard anal. gave a higher assocn. const. of PPM(CD) for (-)-cinchonidine (1.14.times.107 M-1) than those of PP(CD) (1.45.times.106 M-1) and PM(CD) (6.78.times.106 M-1). The affinity distribution of binding sites estd. by affinity spectrum anal. showed a higher percentage of high-affinity sites and a lower percentage of low-affinity sites in PPM(CD). The MIPs contg. a zinc(II) porphyrin in the binding sites, PPM(CD) and PP(CD), showed fluorescence quenching according to the binding of (-)-cinchonidine, and the quenching was significant in the low-concn. range, suggesting that the high-affinity binding sites contain the porphyrin residue. The correlation of the relative fluorescence intensity against log of (-)-cinchonidine concns. showed a linear relationship. These results revealed that the MIP having highly specific binding sites was assembled by the two functional monomers, vinyl-substituted zinc(II) porphyrin and methacrylic acid, and they cooperatively worked to yield the specific binding. In addn., the zinc(II) porphyrin-based MIPs appeared to act as fluorescence sensor selectively responded by binding events of the template mol.

IT 287402-13-5P

(molecularly imprinted polymers with metalloporphyrin-based mol. recognition sites coassembled with methacrylic acid)

RN 287402-13-5 HCA

CN Zinc, [4-[10,15,20-tris[4-(1-methylethyl)phenyl]-21H,23H-porphin-5-yl-.kappa.N21,.kappa.N22,.kappa.N23,.kappa.N24]phenyl 2-methyl-2-propenoato(2-)]-, (SP-4-2)-, polymer with 1,2-ethanediyl bis(2-methyl-2-propenoate) and 2-methyl-2-propenoic acid (9CI) (CA INDEX NAME)

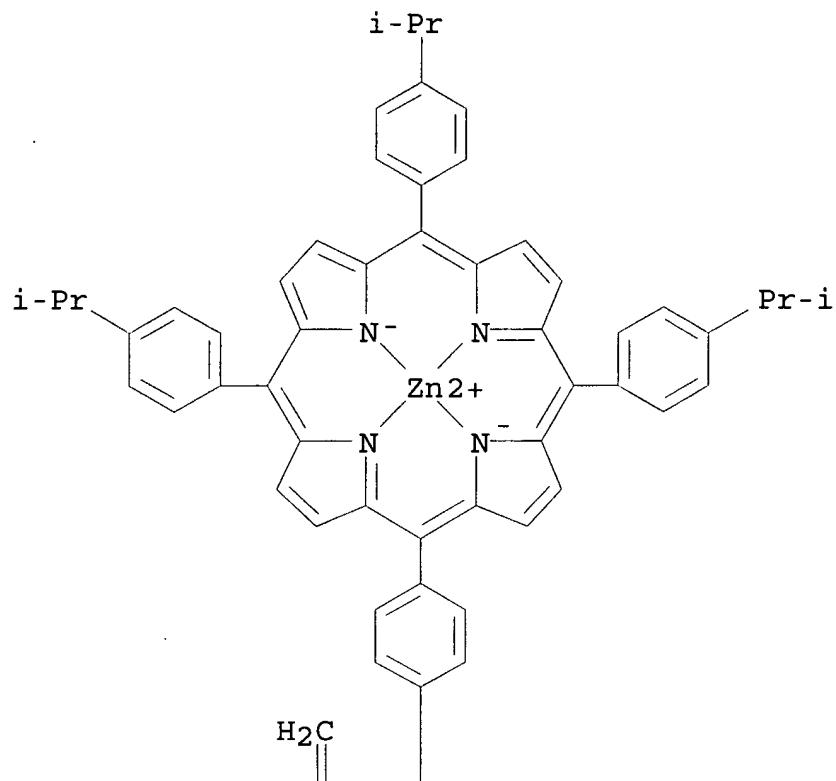
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CRN 287402-11-3

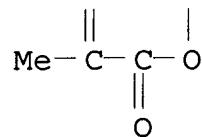
CMF C57 H50 N4 O2 Zn

CCI CCS

PAGE 1-A

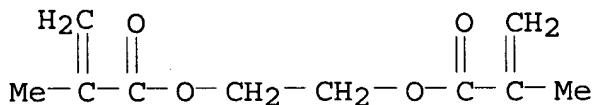


PAGE 2-A

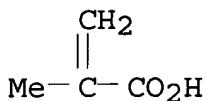


CM 2

CRN 97-90-5  
CMF C10 H14 04



CM 3

CRN 79-41-4  
CMF C4 H6 O2

IT 287402-13-5P

(molecularly imprinted polymers with metalloporphyrin-based mol. recognition sites coassembled with methacrylic acid)

L21 ANSWER 12 OF 55 HCA COPYRIGHT 2002 ACS

130:344926 Immobilized photosensitizers for solar photochemical applications. Faust, D.; Funken, K.-H.; Horneck, G.; Milow, B.; Ortner, J.; Sattlegger, M.; Schafer, M.; Schmitz, C. (Deutsches Zentrum fur Luft- und Raumfahrt e.V., Koln, D-51170, Germany). Solar Energy, Volume Date 1999, 65(1), 71-74 (English) 1998. CODEN: SRENA4. ISSN: 0038-092X. Publisher: Elsevier Science Ltd..

AB New hydrophilic immobilized photosensitizers (heterogeneous phase) were synthesized that overcome some disadvantages of the use of homogeneous phase sensitizers for detoxification and disinfection of water. The chosen sensitizers, based on porphyrin moieties, were bound on poly(Me methacrylate) (PMMA). The measured prodn. rate of singlet oxygen is significantly higher than that of the well-known rose bengal immobilized on Merrifield polymer. The sensitive polymer can be used for detoxification and disinfection of polluted water.

IT 219854-28-1 219854-30-5

(immobilized photosensitizers for solar photochem. applications)

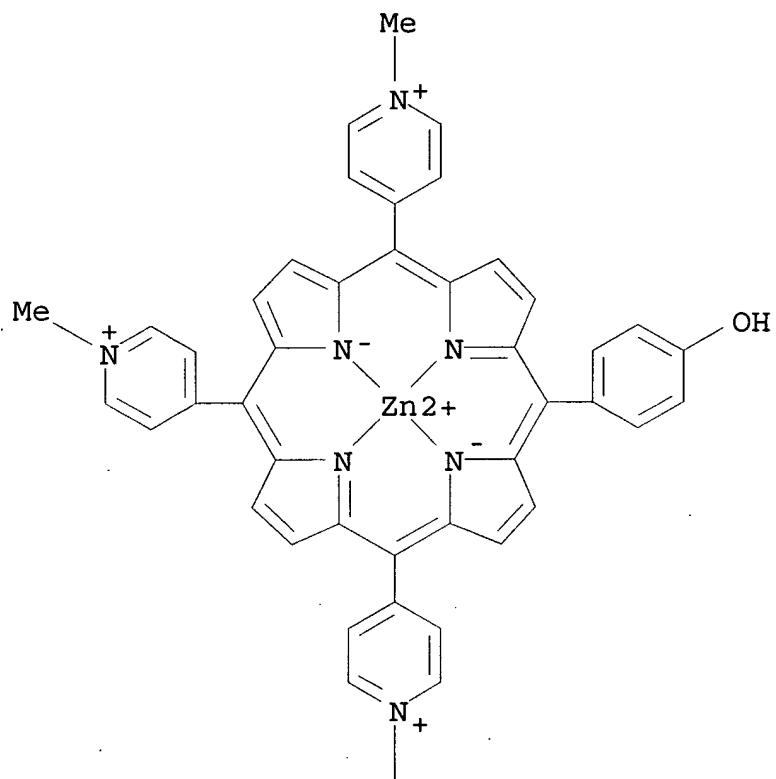
RN 219854-28-1 HCA

CN 2-Propenoic acid, 2-methyl-, methyl ester, homopolymer, ester with (SP-4-2)-[[4,4',4'''- [20-(4-hydroxyphenyl)-21H,23H-porphine-5,10,15-triyl-.kappa.N21,.kappa.N22,.kappa.N23,.kappa.N24]tris[1-methylpyridiniumato]](2-)]zinc(3+) (9CI) (CA INDEX NAME)

CM 1

CRN 219824-69-8  
CMF C44 H34 N7 O Zn  
CCI CCS

PAGE 1-A



PAGE 2-A

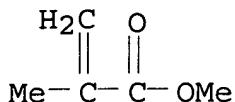


CM 2

CRN 9011-14-7  
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 CCI PMS

CM 3

CRN 80-62-6  
 CMF C<sub>5</sub> H<sub>8</sub> O<sub>2</sub>



RN 219854-30-5 HCA

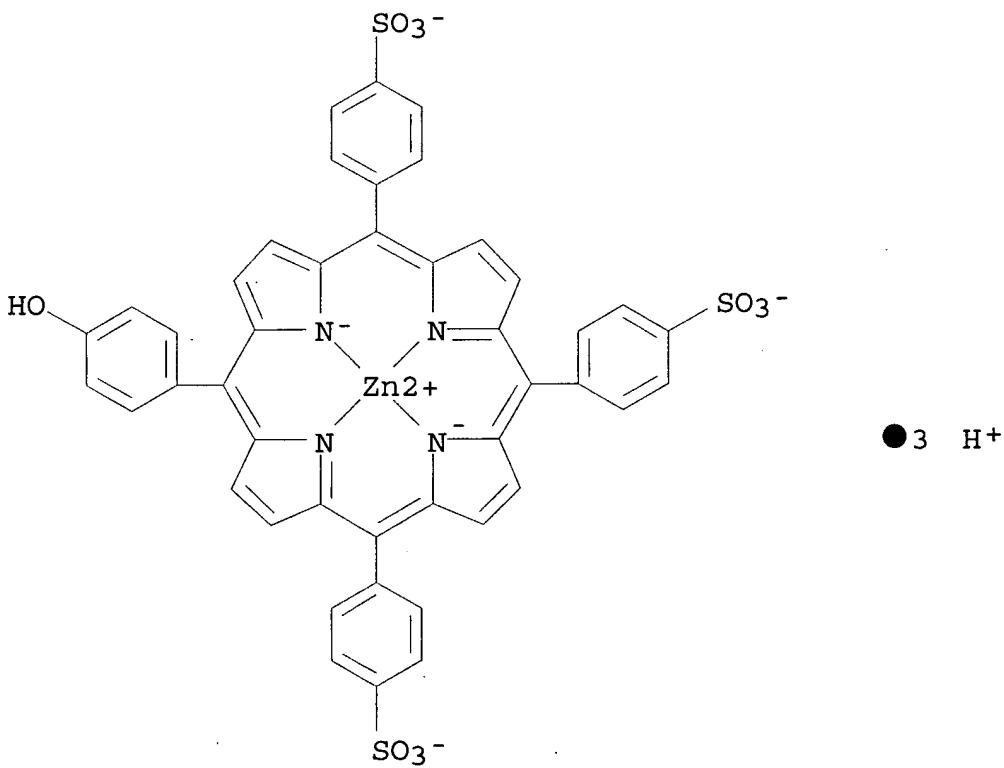
CN 2-Propenoic acid, 2-methyl-, methyl ester, homopolymer, ester with trihydrogen (SP-4-2)-[[4,4',4'''-[[20-(4-hydroxyphenyl)-21H,23H-porphine-5,10,15-triyl-.kappa.N21,.kappa.N22,.kappa.N23,.kappa.N24]tris[benzenesulfonato]](5-)]zincate(3-)] (9CI) (CA INDEX NAME)

CM 1

CRN 219824-68-7

CMF C44 H25 N4 O10 S3 Zn . 3 H

CCI CCS



CM 2

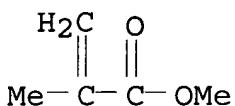
CRN 9011-14-7

CMF (C5 H8 O2) x

CCI PMS.

CM 3

CRN 80-62-6  
CMF C5 H8 O2



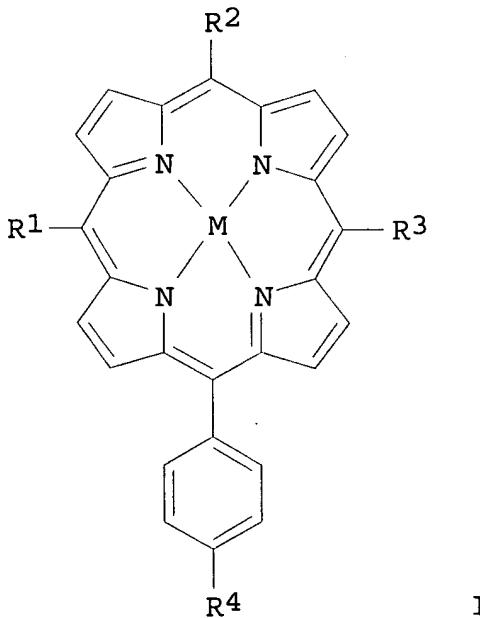
IT 219854-28-1 219854-30-5

(immobilized photosensitizers for solar photochem. applications)

L21 ANSWER 14 OF 55 HCA COPYRIGHT 2002 ACS

130:124935 synthesis of hydroxyphenylporphyrin derivatives as photosensitizers. Funken, Karl-Heinz; Ortner, Jurgen; Braun-Milow, Barbara; Faust, Delia; Horneck, Gerda; Schafer, Manfred; Schmitz, Claudia; Sattlegger, Michael (DLR Deutsches Zentrum fur Luft- und Raumfahrt e.V., Germany). Eur. Pat. Appl. EP 891977 A1 19990120, 21 pp. DESIGNATED STATES: R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO. (German). CODEN: EPXXDW. APPLICATION: EP 1998-112923 19980711. PRIORITY: DE 1997-19730469 19970716; DE 1997-19743903 19971004.

GI



AB The authors describe the synthesis of free base and metallo(hydroxyphenyl)porphyrin derivs. (I) [M = 2H, Zn; R1, R2, R3

= H, alkyl, aryl, alkaryl, aralkyl, alkaryl sulfonate, N-alkylpyridyl; R4 = OH, polyester, polymethacrylate, polyacrylate; copolymer with polymethacrylate, polyacrylate, polyacetylene, polyimidine, polyamidine] as photosensitizers for use in photooxidative water purfn.

IT 219824-71-2P 219854-28-1P 219854-30-5P

(synthesis of hydroxyphenylporphyrin derivs. as photosensitizers)

RN 219824-71-2 HCA

CN Zincate(3-), [4-[10,15,20-tris(4-sulfophenyl)-21H,23H-porphin-5-yl-.kappa.N21,.kappa.N22,.kappa.N23,.kappa.N24]phenyl 2-methyl-2-propenoato(5-)]-, (SP-4-2)-, trihydrogen, polymer with methyl 2-methyl-2-propenoate (9CI) (CA INDEX NAME)

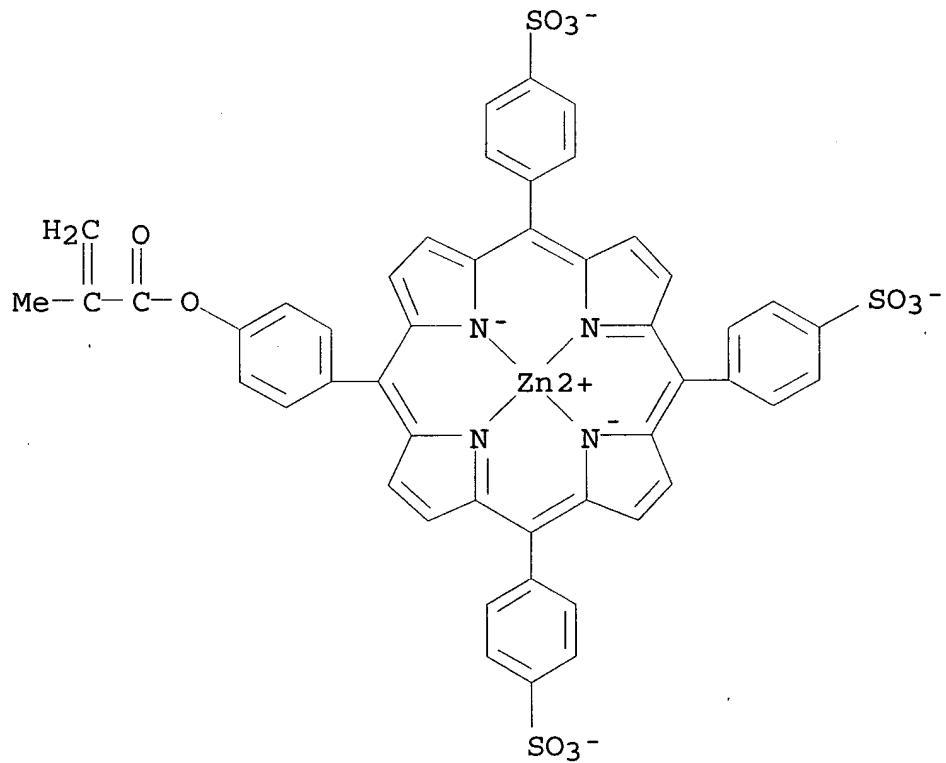
CM 1

CRN 219824-70-1

CMF C48 H29 N4 O11 S3 Zn . 3 H

CCI CCS

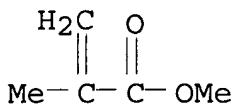
PAGE 1-A



PAGE 2-A

● 3 H<sup>+</sup>

CM 2

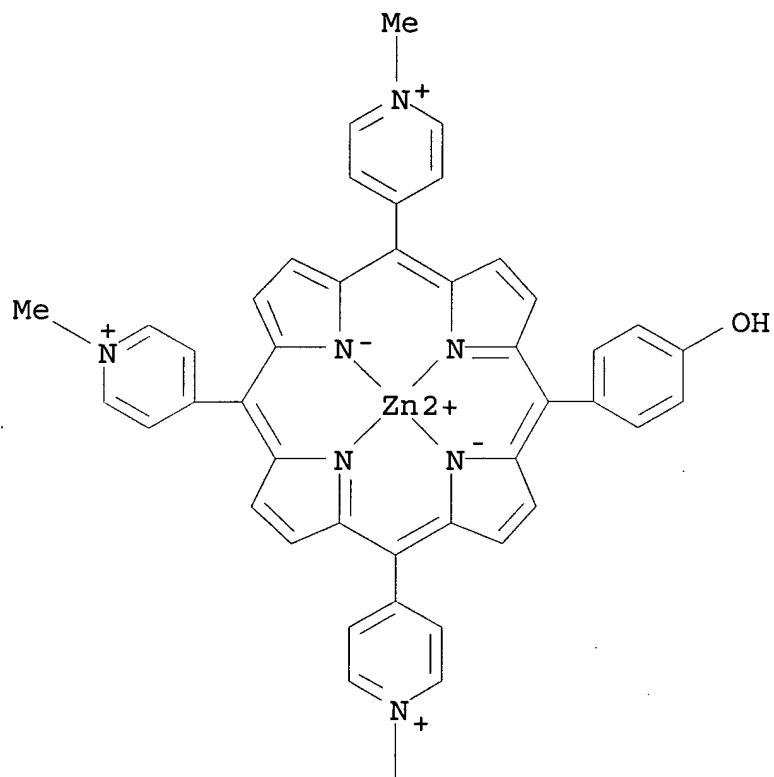
CRN 80-62-6  
CMF C5 H8 O2

RN 219854-28-1 HCA  
CN 2-Propenoic acid, 2-methyl-, methyl ester, homopolymer, ester with (SP-4-2)-[[4,4',4'''-[[20-(4-hydroxyphenyl)-21H,23H-porphine-5,10,15-triyl-.kappa.N21,.kappa.N22,.kappa.N23,.kappa.N24]tris[1-methylpyridiniumato]](2-)]zinc(3+) (9CI) (CA INDEX NAME)

CM 1

CRN 219824-69-8  
CMF C44 H34 N7 O Zn  
CCI CCS

PAGE 1-A



PAGE 2-A

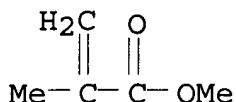


CM 2

CRN 9011-14-7  
CMF (C<sub>5</sub> H<sub>8</sub> O<sub>2</sub>)<sub>x</sub>  
CCI PMS

CM 3

CRN 80-62-6  
CMF C<sub>5</sub> H<sub>8</sub> O<sub>2</sub>



RN 219854-30-5 HCA

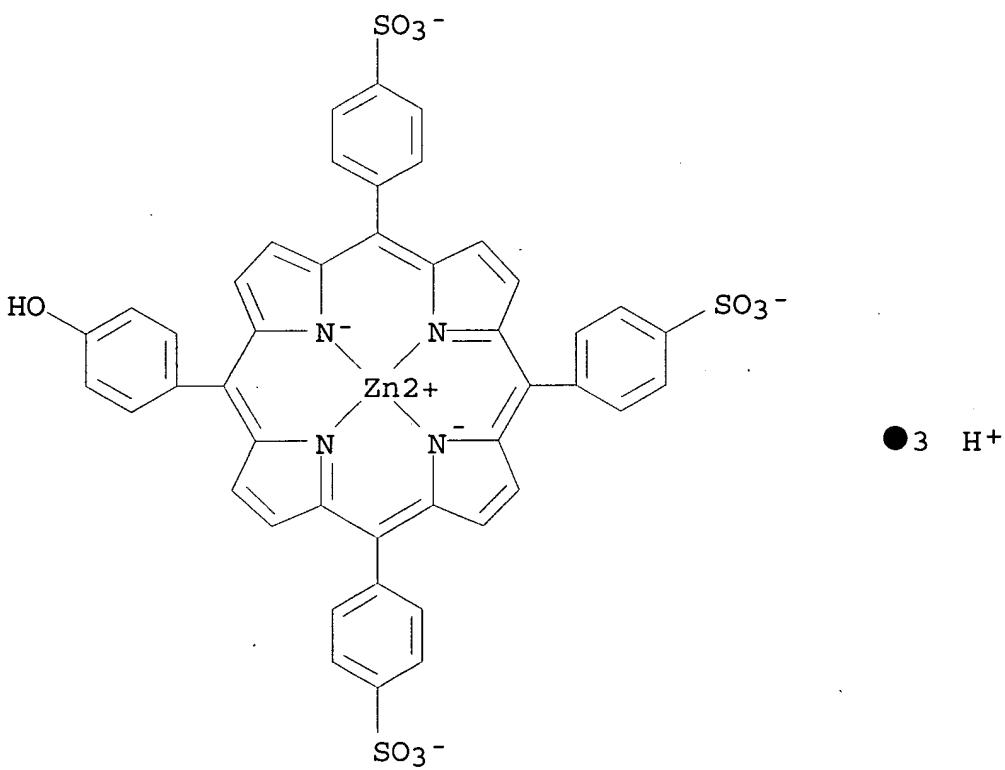
CN 2-Propenoic acid, 2-methyl-, methyl ester, homopolymer, ester with trihydrogen (SP-4-2)-[[4,4',4'''-[[20-(4-hydroxyphenyl)-21H,23H-porphine-5,10,15-triyl-.kappa.N21,.kappa.N22,.kappa.N23,.kappa.N24]tris[benzenesulfonato]](5-)]zincate(3-)] (9CI) (CA INDEX NAME)

CM 1

CRN 219824-68-7

CMF C44 H25 N4 O10 S3 Zn . 3 H

CCI CCS



CM 2

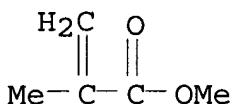
CRN 9011-14-7

CMF (C5 H8 O2)x

CCI PMS

CM 3

CRN 80-62-6  
 CMF C5 H8 O2



IT 219824-71-2P 219854-28-1P 219854-30-5P

(synthesis of hydroxyphenylporphyrin derivs. as photosensitizers)

L21 ANSWER 23 OF 55 HCA COPYRIGHT 2002 ACS

125:143841 Optical switching in polymer gels. Suzuki, A.; Ishii, T.; Maruyama, Y. (Dep. Mater. Sci., Yokohama Natl. Univ., Yokohama, 240, Japan). Journal of Applied Physics, 80(1), 131-136 (English) 1996. CODEN: JAPIAU. ISSN: 0021-8979. Publisher: American Institute of Physics.

AB Soft materials have long been sought after for use in devices such as actuators, artificial muscles, separators, switches, sensors, memories, and so forth. The authors developed a soft, optically transparent material using polymer gels that can not only be activated by visible light (switched on) but also deactivated (switched off) by altering the local environment using 3 different means: pH, temp., and light. This copolymer gel is a covalently cross-linked network of N-isopropylacrylamide, Na acrylate, and a chromophore, which is found to undergo phase transitions exhibiting large hysteresis in the degree of swelling in response to pH, temp., and light. In each system, between the transitions for swelling and shrinking, the gel can show either a swollen or a collapsed state, which can be selected according to the history of the variables. A thermoresponsive gel with chromophore exhibits a local vol. phase transition upon illumination with visible light. By making use of this phenomenon, the authors have successfully controlled the phase in which a gel exists with visible light: Without light illumination the gel stays in the swollen state. Upon illumination beyond a threshold intensity, however, a vol. transition is locally induced, thereby forming a material in which both phases coexist stably for at least several hours after the light source was removed. The phenomenol. stability of the material in the coexistence state is discussed from the Landau theory.

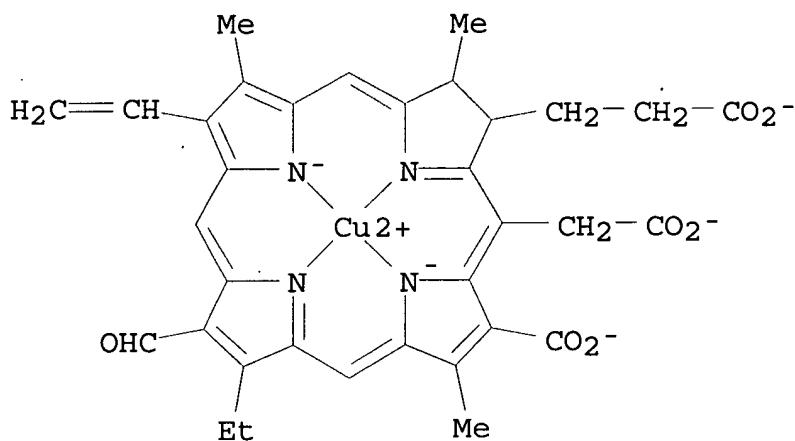
IT 168102-36-1

(optically-switched expansion and contraction in polymer gels)

RN 168102-36-1 HCA

CN Cuprate(3-), [(7S,8S)-3-carboxy-5-(carboxymethyl)-13-ethenyl-18-ethyl-17-formyl-7,8-dihydro-2,8,12-trimethyl-21H,23H-porphine-2-propanoato(5-)-.kappa.N21,.kappa.N22,.kappa.N23,.kappa.N24]-, (SP-4-2)-, trisodium, polymer with N,N'-methylenebis[2-propenamide], N-(1-methylethyl)-2-propenamide and sodium 2-propenoate (9CI) (CA INDEX NAME)

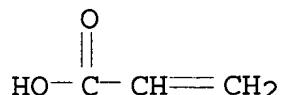
CRN 28302-36-5  
 CMF C34 H29 Cu N4 O7 . 3 Na  
 CCI CCS



● 3 Na<sup>+</sup>

CM 2

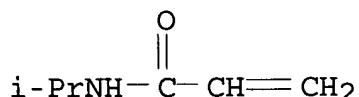
CRN 7446-81-3  
 CMF C3 H4 O2 . Na



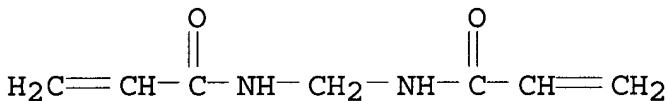
● Na

CM 3

CRN 2210-25-5  
 CMF C6 H11 N O



CM 4

CRN 110-26-9  
CMF C7 H10 N2 O2

IT 168102-36-1

(optically-switched expansion and contraction in polymer gels)

L21 ANSWER 30 OF 55 HCA COPYRIGHT 2002 ACS

122:56989 Phase transition in polymer gels due to local heating by illumination of light. Suzuki, A.; Suzuki, H.; Sakashita, O.; Sakuyama, H. (Fac. Eng., Yokohama Natl. Univ., Yokohama, 240, Japan). Phase Transitions, 47(3-4), 161-81 (English) 1994. CODEN: PHTRDP. ISSN: 0141-1594.

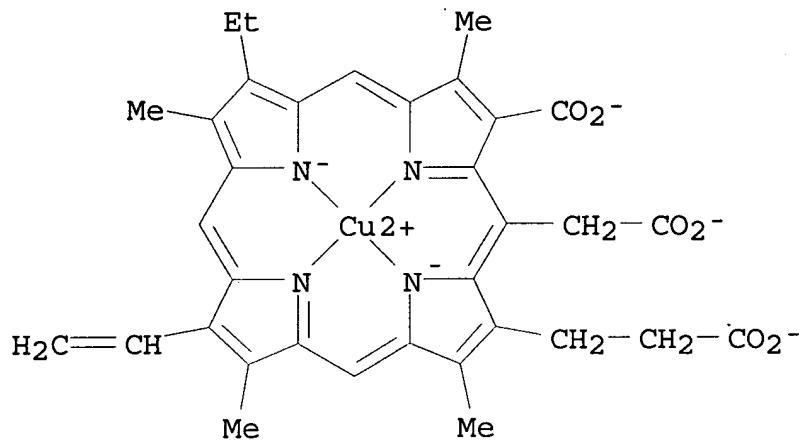
AB The vol. phase transition in gels induced by visible light and its related properties are presented, the mechanism of which is based on local heating of a polymer network by illumination with light. The gels consist of a methylenebisacrylamide-crosslinked copolymer network of thermosensitive N-isopropylacrylamide and a chromophore (Cu chlorophyllin tri-Na salt). Without light illumination, the gel vol. changes sharply, but continuously at .apprx.34.degree. when the temp. is varied. At a fixed temp. of an appropriate value, a discontinuous vol. transition is obsd. when the light intensity is gradually changed. The phase transitions can be understood in terms of the temp. increment at the immediate vicinity of polymer chains due to the local heating via light absorption and subsequent thermal dissipation of light by the chromophore. The results can be qual. described by the Flory-Huggins mean-field equation of state of gels. In order to make clear the mechanism of the light-induced phase transition in the present system, we measure the light transmitting properties and the swelling as well as shrinking kinetics. These preliminary results are described semi-qual. by making use of a simple phenomenol. model.

IT 129269-58-5, Copper chlorophyllin trisodium salt-N-isopropylacrylamide-methylenebisacrylamide copolymer (phase transition in polymer gels due to local heating by photoillumination)

RN 129269-58-5 HCA  
CN Cuprate(3-), [18-carboxy-20-(carboxymethyl)-8-ethenyl-13-ethyl-3,7,12,17-tetramethyl-21H,23H-porphine-2-propanoato(5-)-N21,N22,N23,N24]-, (SP-4-2)-, trisodium, polymer with N,N'-methylenebis[2-propenamide] and N-(1-methylethyl)-2-propenamide (9CI) (CA INDEX NAME)

CM 1

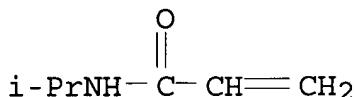
CRN 100111-78-2  
 CMF C34 H29 Cu N4 O6 . 3 Na  
 CCI CCS



● 3 Na<sup>+</sup>

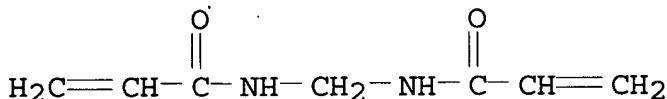
CM 2

CRN 2210-25-5  
 CMF C6 H11 N O



CM 3

CRN 110-26-9  
 CMF C7 H10 N2 O2



IT 129269-58-5, Copper chlorophyllin trisodium salt-N-isopropylacrylamide-methylenebisacrylamide copolymer (phase transition in polymer gels due to local heating by photoillumination)

113:116321 Phase transition in polymer gels induced by visible light.  
 Suzuki, Atsushi; Tanaka, Toyoichi (Dep. Phys., Massachusetts Inst. Technol., Cambridge, MA, 02139, USA). Nature (London, United Kingdom), 346(6282), 345-7 (English) 1990. CODEN: NATUAS. ISSN: 0028-0836.

AB Visible light-induced phase transition in chlorophyllin salt-contg. acrylamide copolymer gels is reported. The transition mechanism is due only to the direct heating of the network polymers by light, which is an extremely fast process.

IT 129269-58-5, Copper chlorophyllin trisodium salt-N-isopropylacrylamide-N,N'-methylenebisacrylamide copolymer (gels, visible light-induced phase transition in, mechanism of)

RN 129269-58-5 HCA

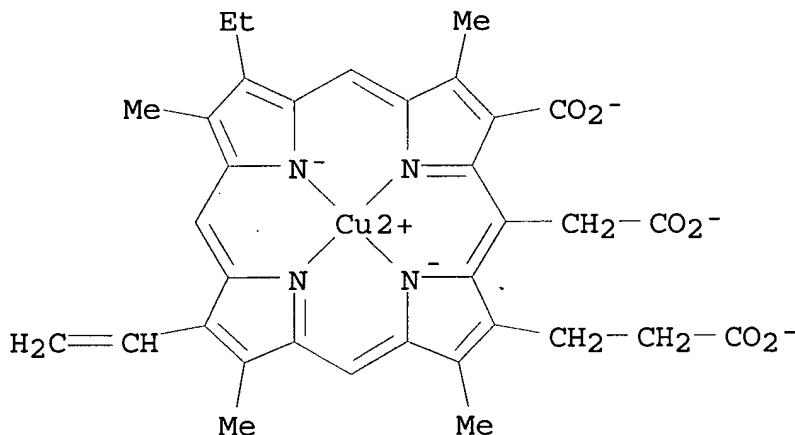
CN Cuprate(3-), [18-carboxy-20-(carboxymethyl)-8-ethenyl-13-ethyl-3,7,12,17-tetramethyl-21H,23H-porphine-2-propanoato(5-)-N21,N22,N23,N24]-, (SP-4-2)-, trisodium, polymer with N,N'-methylenebis[2-propenamide] and N-(1-methylethyl)-2-propenamide (9CI) (CA INDEX NAME)

CM 1

CRN 100111-78-2

CMF C34 H29 Cu N4 O6 . 3 Na

CCI CCS

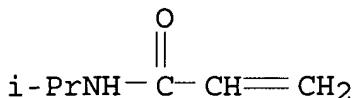


O3 Na<sup>+</sup>

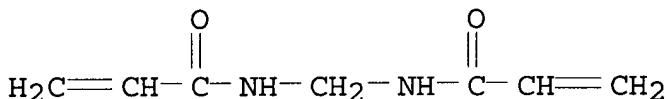
CM 2

CRN 2210-25-5

CMF C6 H11 N O



CM 3

CRN 110-26-9  
CMF C7 H10 N2 O2

IT 129269-58-5, Copper chlorophyllin trisodium salt-N-isopropylacrylamide-N,N'-methylenebisacrylamide copolymer (gels, visible light-induced phase transition in, mechanism of)

=&gt; d 19 1-3 cbib abs hitstr hitind

↓↓↓ claim 2

L9 ANSWER 1 OF 3 HCA COPYRIGHT 2002 ACS

133:328334 Multi-component multiphase type polymer material and its use in functional element.. Hiraoka, Toshiro; Asakawa, Koji (Toshiba Corp., Japan). Jpn. Kokai Tokkyo Koho JP 2000286479 A2 20001013, 26 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1999-87094 19990329.

AB The polymer material has 3-dimensionally continuous nanophase sepn. structure and comprises phase A which is an aggregate of hole- or electron-conductive polymer chain and phase B which is an aggregate of another hole- or electron conductive polymer chain, and the two phases are chem. bonded at the interfaces. The functional element comprises the above material sandwiched between a pair of electrode. Preferably, the polymer material is A-B or B-A-B type block copolymers. The functional elements are useful in solar cells, photoelec. converters, capacitors, and other electronic devices.

IT 302896-97-5P  
(photoelec. converters contg. conjugated conductive block copolymers)RN 302896-97-5 HCA  
CN Copper, [N-[9,16,23-tris(1,1-dimethylethyl)-29H,31H-phthalocyanin-2-yl]-2-propenamidato(2-)-N29,N30,N31,N32]-, polymer with [4-(diphenylamino)phenyl]methyl 2-methyl-2-propenoate and .alpha.- (2-methyl-1-oxo-2-propenyl)-.omega.-methoxypoly[oxy[[2-(9-dodecyl-3,8,9,10-tetrahydro-1,3,8,10-tetraoxoanthra[2,1,9-def:6,5,10-d'e'f']diisoquinolin-2(1H)-yl)ethoxy]methyl]-1,2-ethanediyl]], graft (9CI) (CA INDEX NAME)

CM 1

CRN 302896-96-4

CMF (C<sub>41</sub> H<sub>42</sub> N<sub>2</sub> O<sub>6</sub>)<sub>n</sub> C<sub>5</sub> H<sub>8</sub> O<sub>2</sub>

CCI IDS, PMS, MAN

\*\*\* STRUCTURE DIAGRAM IS NOT AVAILABLE \*\*\*

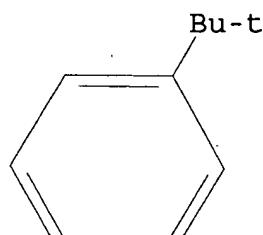
CM 2

CRN 174701-86-1

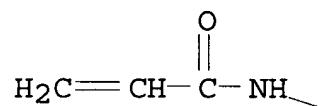
CMF C<sub>47</sub> H<sub>43</sub> Cu N<sub>9</sub> O

CCI CCS

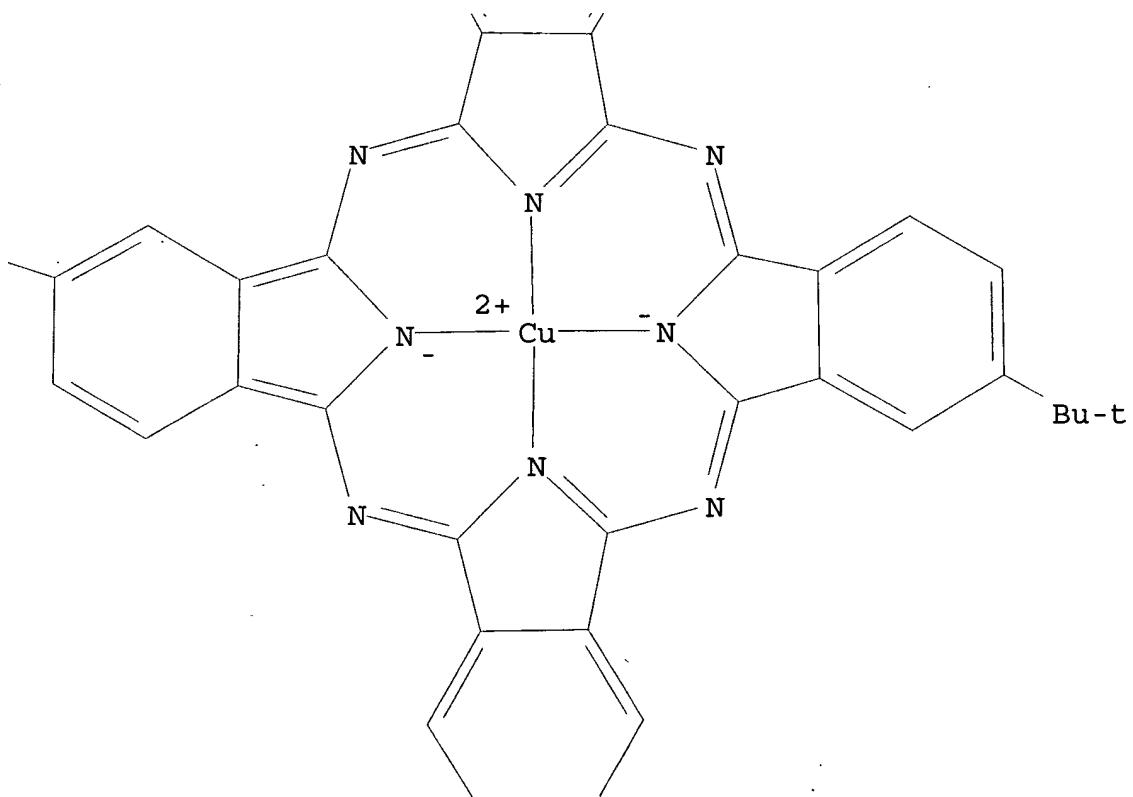
PAGE 1-B



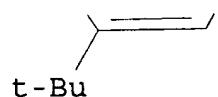
PAGE 2-A



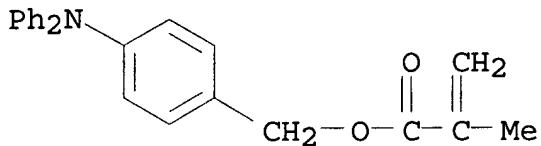
PAGE 2-B



PAGE 3-B



CRN 74974-51-9  
 CMF C23 H21 N O2



IC ICM H01L051-00  
 ICS C08F291-00; C08F297-00; H01L031-04; H01L033-00  
 CC 76-3 (Electric Phenomena)  
 Section cross-reference(s) : 73  
 IT Capacitors  
 Electrochromic devices  
**Electroluminescent** devices  
 Secondary batteries  
 Transistors  
 (based on conductive conjugated block copolymers)  
 IT 302841-63-0P  
 (diblock; **electroluminescent** devices contg. conjugated  
 conductive block copolymers)  
 IT 302841-68-5P 302841-69-6P  
 (**electroluminescent** devices contg. conjugated  
 conductive block copolymers)  
 IT 302896-97-5P  
 (photoelec. converters contg. conjugated conductive block  
 copolymers)  
 IT 302841-67-4P  
 (triblock; **electroluminescent** devices contg. conjugated  
 conductive block copolymers)

L9 ANSWER 2 OF 3 HCA COPYRIGHT 2002 ACS  
 133:10818 Organic **EL** (**electroluminescent**) device  
 containing phthalocyanine polymer and its manufacture. Takahashi,  
 Takamitsu; Tsuruoka, Masahisa; Fukuda, Tatsuo; Kobayashi, Norihisa;  
 Tanaka, Toyohide (Futaba Denshi Kogyo Co., Ltd., Japan). Jpn. Kokai  
 Tokkyo Koho JP 2000150146 A2 20000530, 9 pp. (Japanese). CODEN:  
 JKXXAF. APPLICATION: JP 1998-313375 19981104.

AB The **EL** device has several org. **light-emitting** layers contg. a phthalocyanine polymer film formed  
 by ion plating. The manuf. of the device involves deposition of a  
 phthalocyanine polymer film by applying kinetic energy to  
 phthalocyanine plasma. The phthalocyanine polymer film shows  
 improved transmittance in a visible red region to increase  
 efficiency of red emission.

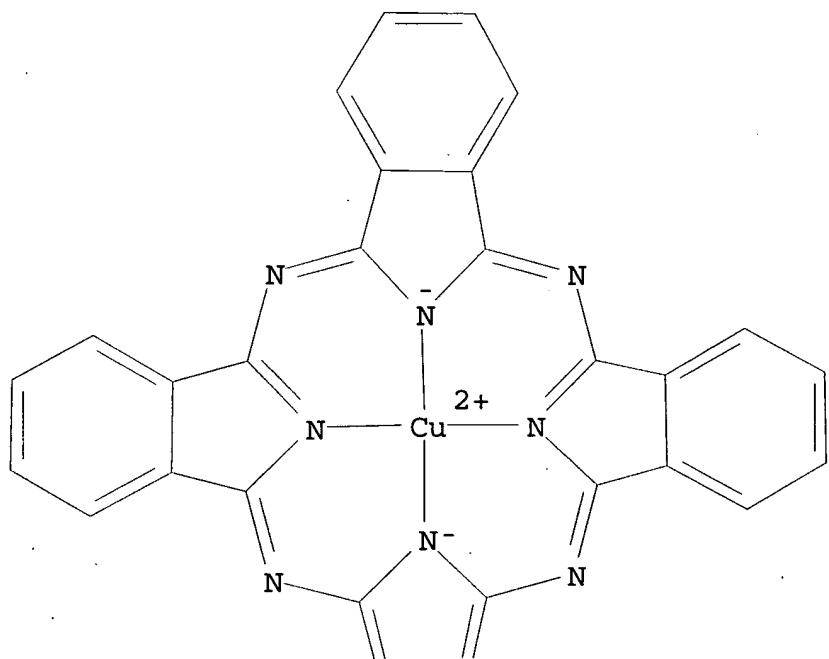
IT 26893-93-6P  
 (manuf. of org. **electroluminescent** device contg.  
 phthalocyanine polymer hole-injection or electron-transporting  
 layer)

RN 26893-93-6 HCA  
 CN Copper, [29H,31H-phthalocyaninato(2-).kappa.N29,.kappa.N30,.kappa.N31,.kappa.N32]-, homopolymer (9CI) (CA INDEX NAME)

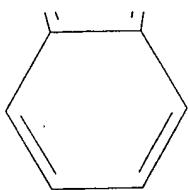
CM i

CRN 147-14-8  
 CMF C32 H16 Cu N8  
 CCI CCS

PAGE 1-A



PAGE 2-A



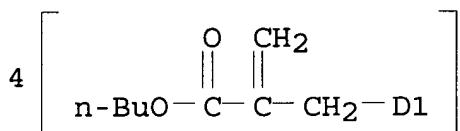
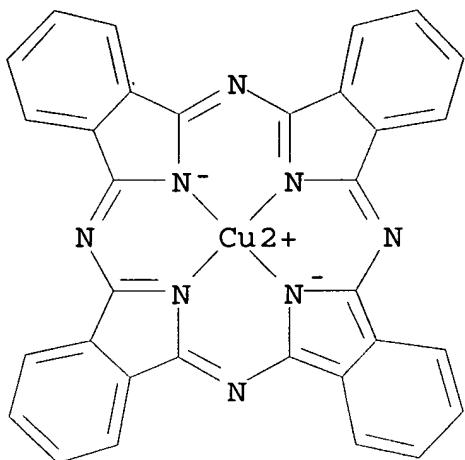
IC ICM H05B033-10

CC ICS H05B033-14; H05B033-22  
73-10 (Optical, Electron, and Mass Spectroscopy and Other Related Properties)  
Section cross-reference(s): 26, 38  
ST **electroluminescent** device phthalocyanine polymer hole injection; electron transporting **electroluminescent** device phthalocyanine polymer; ion plating phthalocyanine polymer **EL** device  
IT Vapor deposition process  
(ion plating, phthalocyanine polymer film deposition by; manuf. of org. **electroluminescent** device contg. phthalocyanine polymer hole-injection or electron-transporting layer)  
IT **Electroluminescent** devices  
(manuf. of org. **electroluminescent** device contg. phthalocyanine polymer hole-injection or electron-transporting layer)  
IT 26893-93-6P  
(manuf. of org. **electroluminescent** device contg. phthalocyanine polymer hole-injection or electron-transporting layer)

L9 ANSWER 3 OF 3 HCA COPYRIGHT 2002 ACS  
121:241440 organic thin-film elements. Naito, Katsuyuki (Tokyo Shibaura Electric Co, Japan). Jpn. Kokai Tokkyo Koho JP 06093258 A2 19940405 Heisei, 8 pp. (Japanese). CODEN: JKXXAF. APPLICATION: JP 1992-271199 19920914.  
AB The title element comprises a 1st thin film contg. a fullerene mol. and a 2nd thin film contg. an org. compd., wherein the electron affinity of the fullerene mol. is greater than that of the org. mol. The element is suited for use in **electroluminescent** devices, org. solar cells, and optical memory devices, providing a long-life stability.  
IT 145871-41-6  
(photosensitive layers from, in optical memory devices, contg. fullerene electron acceptor layer)  
RN 145871-41-6 HCA  
CN Copper, [tetrabutyl .alpha.,.alpha.',.alpha.'',.alpha.''''-tetrakis(methylene)-29H,31H-phthalocyanine-C,C,C,C-tetrapropionate(2-)-N29,N30,N31,N32]-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 145871-40-5  
CMF C64 H64 Cu N8 O8  
CCI CCS, IDS



IC ICM C09K011-06  
 ICS G03G005-06; H01L029-28; H01L029-91; H01L031-04; H01L033-00;  
 H05B033-14  
 ICA H01L039-12  
 CC 73-12 (Optical, Electron, and Mass Spectroscopy and Other Related  
 Properties)  
 IT **Electroluminescent** devices  
 Photoelectric devices, solar  
 (org. thin film laminates, contg. fullerene electron acceptor  
 layer)  
 IT 2085-33-8, Tris(8-quinolinolato)aluminum 138372-67-5  
 (**electroluminescent** devices from, as phosphor, with  
 fullerene electron-transporting layer)  
 IT 58473-78-2  
 (hole transport layers from, in **electroluminescent**  
 devices, contg. fullerene electron accept layer),  
 IT **145871-41-6**  
 (photosensitive layers from, in optical memory devices, contg.  
 fullerene electron acceptor layer)

=> d 114 1-10 cbib abs hitstr hitind

L14 ANSWER 1 OF 10 HCA COPYRIGHT 2002 ACS  
 130:4438 Shell **cross-linked** knedels: amphiphilic  
 core-shell nanospheres with unique potential for controlled release  
 applications. Thurmond, K. Bruce, II; Wooley, Karen L. (Department

of Chemistry, Washington University, St. Louis, MO, 63130-4899, USA). ACS Symposium Series, 709 (Tailored Polymeric Materials for Controlled Delivery Systems), 165-175 (English) 1998. CODEN: ACSMC8. ISSN: 0097-6156. Publisher: American Chemical Society.

AB Shell **cross-linked** knedels (SCK's) are stable, covalently bound macromol. assemblies that possess spherical shape, a core-shell morphol., and nanometer dimensions. The SCK's are prep'd. by a three-step procedure beginning with covalent construction of an amphiphilic diblock copolymer, followed by self-assembly into a three-dimensional structure and lastly, stabilization via covalent **cross-links** within selective regions. This is reminiscent of the method by which proteins are created. The chem. is performed in water and the SCK's contain a hydrogel-like **cross-linked** surface layer that surrounds a hydrophobic core. Investigation of the SCK's for encapsulation and binding applications is discussed.

IT 215657-63-9P

(amphiphilic styrene-vinylpyridine block copolymer-based core-shell nanospheres with **crosslinked** shells and complexation of the nanosphere shells with large dye mols.)

RN 215657-63-9 HCA

CN Cuprate(4-), [C,C,C,C,C,C,C,C,C-undecachloro-29H,31H-phthalocyanine-C,C,C,C-tetrasulfonato(6-)-N29,N30,N31,N32]-, tetrasodium, compd. with ethenylbenzene block polymer with 4-ethenylpyridine compd. with 1-(chloromethyl)-4-ethenylbenzene (9CI) (CA INDEX NAME)

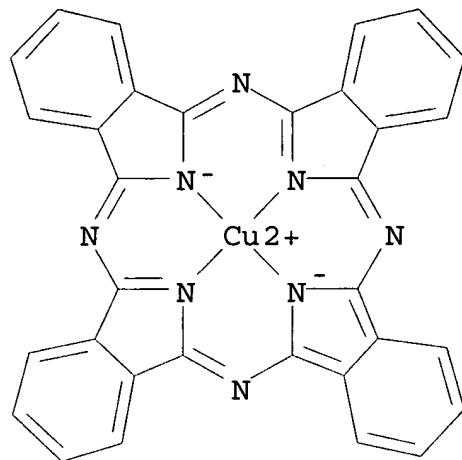
CM 1

CRN 65138-83-2

CMF C32 H Cl11 Cu N8 O12 S4 . 4 Na

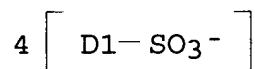
CCI CCS, IDS

PAGE 1-A



11 ( D1-Cl )

PAGE 2-A

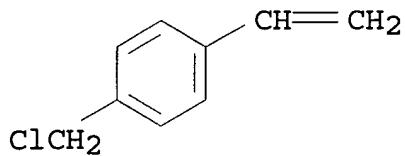
● 4  $\text{Na}^+$ 

CM 2

CRN 188109-30-0  
 CMF C9 H9 Cl . x (C8 H8 . C7 H7 N)x

CM 3

CRN 1592-20-7  
 CMF C9 H9 Cl

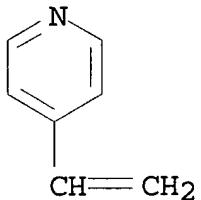


CM 4

CRN 107082-95-1  
 CMF (C8 H8 . C7 H7 N)x  
 CCI PMS

CM 5

CRN 100-43-6  
 CMF C7 H7 N



CM 6

CRN 100-42-5  
 CMF C8 H8

$\text{H}_2\text{C}=\text{CH}-\text{Ph}$

CC 37-6 (Plastics Manufacture and Processing)

IT Solvation

(amphiphilic styrene-vinylpyridine block copolymer-based core-shell nanospheres with **crosslinked** shells and encapsulation and solvation of pyrene with THF in these nanospheres)

IT Encapsulation

(microencapsulation; amphiphilic styrene-vinylpyridine block copolymer-based core-shell nanospheres with **crosslinked** shells with unique potential for controlled release applications)

IT Spheres

(nanospheres; amphiphilic styrene-vinylpyridine block copolymer-based core-shell nanospheres with **crosslinked** shells with unique potential for controlled release applications)

IT Self-assembly  
 (self-assembly in formation of amphiphilic styrene-vinylpyridine block copolymer-based core-shell nanospheres with **crosslinked** shells with unique potential for controlled release applications)

IT 215657-62-8P 215657-63-9P  
 (amphiphilic styrene-vinylpyridine block copolymer-based core-shell nanospheres with **crosslinked** shells and complexation of the nanosphere shells with large dye mols.)

IT 129-00-0, Pyrene, processes  
 (amphiphilic styrene-vinylpyridine block copolymer-based core-shell nanospheres with **crosslinked** shells and encapsulation and solvation of pyrene in these nanospheres)

IT 109-99-9, Tetrahydrofuran, processes  
 (amphiphilic styrene-vinylpyridine block copolymer-based core-shell nanospheres with **crosslinked** shells and encapsulation and solvation of pyrene with THF in these nanospheres)

IT 188109-30-0P  
 (**crosslinked**; amphiphilic styrene-vinylpyridine block copolymer-based core-shell nanospheres with **crosslinked** shells with unique potential for controlled release applications)

L14 ANSWER 2 OF 10 HCA COPYRIGHT 2002 ACS

120:135449 Nylons with **star**-shaped chains and tetrasubstituted carboxylic acids and their manufacture. Hasegawa, Naoki; Usuki, Arimitsu; Okada, Akane; Kurauchi, Toshio (Kabushiki Kaisha Toyota Chuo Kenkyusho, Japan). Ger. Offen. DE 4312182 A1 19931021, 14 pp. (German). CODEN: GWXXBX. APPLICATION: DE 1993-4312182 19930414. PRIORITY: JP 1992-121310 19920414; JP 1993-62896 19930226.

AB Nylons with **star**-shaped chains having low melt viscosity and good mech. properties are manufd. from monomers having .gtoreq.3 polymerizable groups, of which .gtoreq.2 are bonded to arom. rings at positions sep'd. by a C atom. Thus, polymn. of 6.37 g 1,3,5-benzenetricarboxylic acid with 500 g .epsilon.-caprolactam gave a polymer with lower melt viscosity than nylon 6 with comparable mol. wt. and mech. strength.

IT 153433-05-7P  
 (manuf. of, with low melt viscosity and good mech. properties)

RN 153433-05-7 HCA

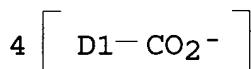
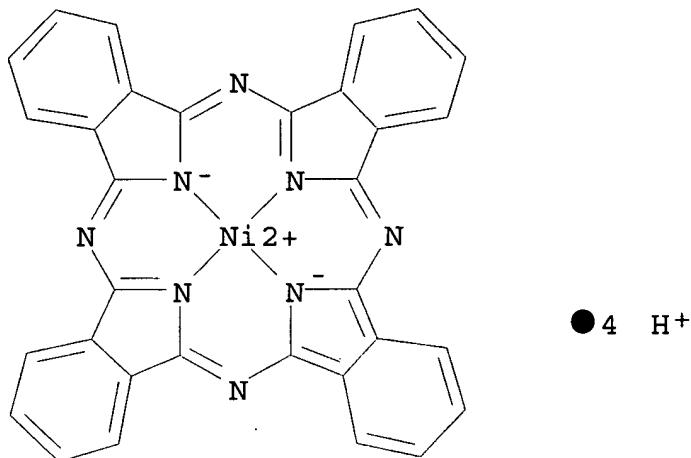
CN Nickelate(4-), [29H,31H-phthalocyanine-C,C,C,C-tetracarboxylato(6-) -N29,N30,N31,N32]-, tetrahydrogen, polymer with hexahydro-2H-azepin-2-one (9CI) (CA INDEX NAME)

CM 1

CRN 107122-90-7

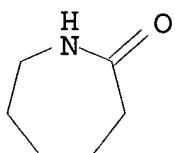
CMF C36 H12 N8 Ni O8 . 4 H

CCI CCS, IDS



CM 2

CRN 105-60-2  
CMF C6 H11 N O



IC ICM C08G069-02  
ICS C07C063-331; C07C051-377  
ICA C08G069-14; C08G069-26; B01J023-42; B01J023-44; B01J023-74  
CC 35-5 (Chemistry of Synthetic High Polymers)  
Section cross-reference(s): 37  
ST star shaped nylon lowered melt viscosity;  
benzenetricarboxylic modified nylon 6; polyamide star  
shaped lowered melt viscosity  
IT Polyamides, preparation  
(manuf. of star-shaped, with low melt viscosity and  
good mech. strength)  
IT 28350-76-7P 153433-01-3P 153433-02-4P 153433-03-5P  
153433-04-6P 153433-05-7P  
(manuf. of, with low melt viscosity and good mech. properties)

118:171056 Novel phthalocyanine/polyol high-solids coatings: structure-property relationships. Exsted, Bert J.; Urban, Marek W. (Dep. Polym. Coatings, North Dakota State Univ., Fargo, ND, 58105, USA). Journal of Applied Polymer Science, 47(11), 2019-35 (English) 1993. CODEN: JAPNAB. ISSN: 0021-8995.

AB A convenient synthetic procedure for prep. Ni carboxylated phthalocyanine is reported. Upon further hydroxylation, such metal phthalocyanine moieties are incorporated into several melamine-based polyester high-solids systems and the structure-property correlations are examd. Mol. level spectroscopic FTIR anal. and mech. testing are correlated in an effort to establish structure-property relations in these coatings. The presence of metal phthalocyanine macrocycle as a **crosslinking** agent enhances such properties as adhesion, hardness, and impact resistance.

IT **146814-95-1P 146814-96-2P**

(coatings, high-solids, prepn. and properties of)

RN 146814-95-1 HCA

CN Nickel, [tetrakis[2-hydroxy-3-[(1-oxoneodecyl)oxy]propyl] 29H,31H-phthalocyanine-2,9,16,23-tetracarboxylato(2-) - N29,N30,N31,N32]-, polymer with formaldehyde and 1,3,5-triazine-2,4,6-triamine (9CI) (CA INDEX NAME)

CM 1

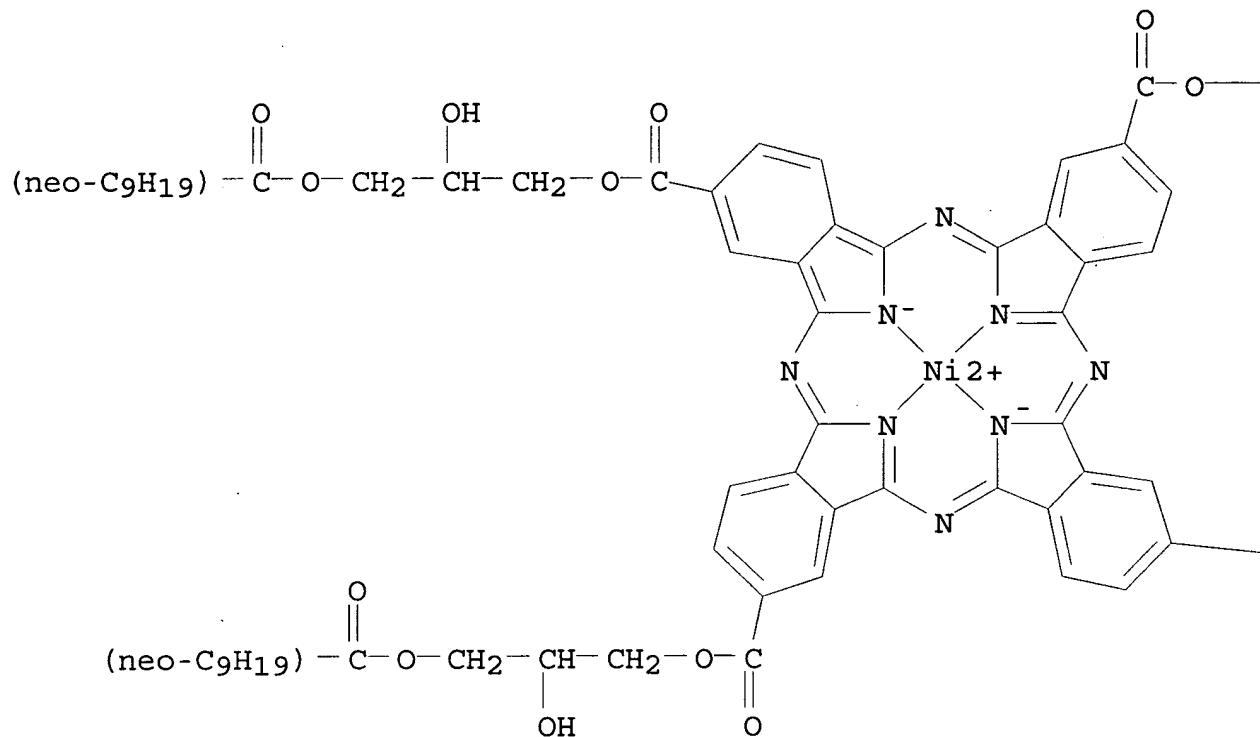
CRN 146814-94-0

CMF C88 H112 N8 Ni O20

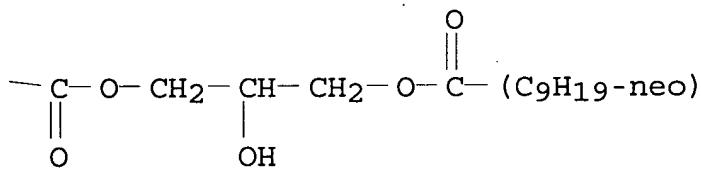
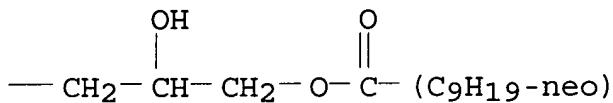
CCI CCS, IDS

~

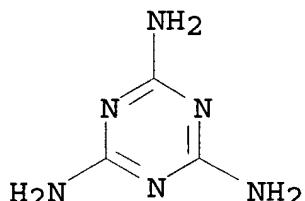
PAGE 1-A



PAGE 1-B



CM 2

CRN 108-78-1  
CMF C3 H6 N6

CM 3

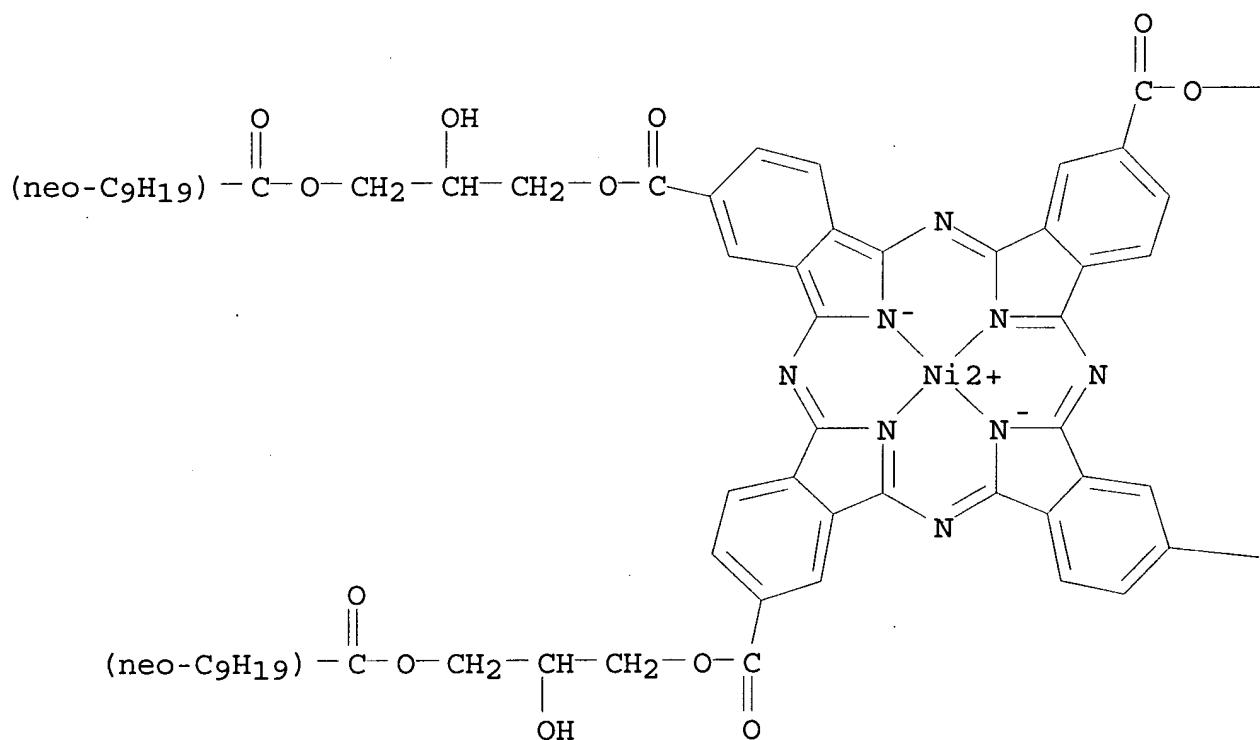
CRN 50-00-0  
CMF C H2 O $\text{H}_2\text{C}=\text{O}$ RN 146814-96-2 HCA  
CN Nickel, [tetrakis[2-hydroxy-3-[(1-oxoneodecyl)oxy]propyl] 29H,31H-phthalocyanine-2,9,16,23-tetracarboxylato(2-)-

N29,N30,N31,N32]-, polymer with 2,2-dimethyl-1,3-propanediol, formaldehyde, hexanedioic acid, 1,3-isobenzofurandione and 1,3,5-triazine-2,4,6-triamine (9CI) (CA INDEX NAME)

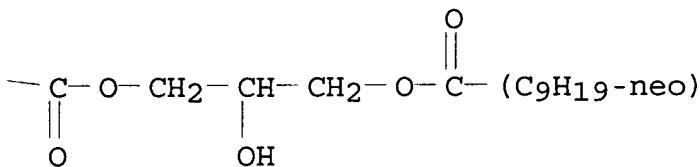
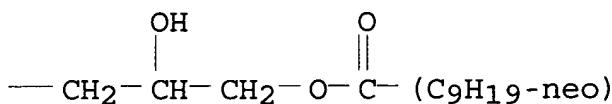
CM 1

CRN 146814-94-0  
CMF C88 H112 N8 Ni O20  
CCI CCS, IDS

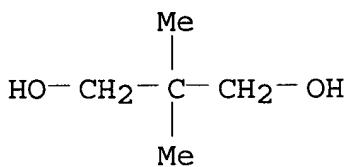
PAGE 1-A



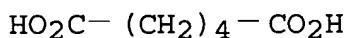
PAGE 1-B



CM 2

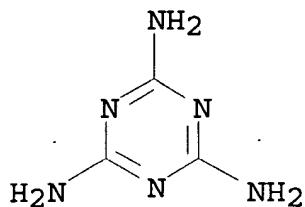
CRN 126-30-7  
CMF C5 H12 O2

CM 3

CRN 124-04-9  
CMF C6 H10 O4

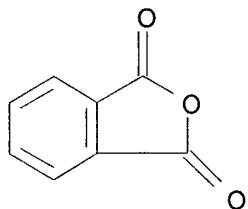
CM 4

CRN 108-78-1  
CMF C3 H6 N6



CM 5

CRN 85-44-9  
 CMF C8 H4 O3



CM 6

CRN 50-00-0  
 CMF C H2 O

H<sub>2</sub>C=O

CC 42-10 (Coatings, Inks, and Related Products)  
 IT 9003-08-1P, Formaldehyde-melamine copolymer 146814-95-1P  
**146814-96-2P** 146899-38-9P  
 (coatings, high-solids, prep. and properties of)

L14 ANSWER 4 OF 10 HCA COPYRIGHT 2002 ACS

115:139261 Low molecular weight, polymeric, and covalently bound cobalt(II)-phthalocyanines for the oxidation of mercaptans. Woehrle, D.; Buck, T.; Schneider, G.; Schulz-Ekloff, G.; Fischer, H. (Inst. Org. Makromol. Chem., Univ. Bremen, Bremen, 2800/33, Germany). Journal of Inorganic and Organometallic Polymers, 1(1), 115-30 (English) 1991. CODEN: JIOPE4. ISSN: 1053-0495.

AB Cobalt(II)-phthalocyanines in different environments are investigated as catalysts for the oxidn. of thiols. Water-sol. low mol.-wt. 2,9,16,23-tetracarboxyphthalocyanine (I) and polymeric phthalocyanine with carboxylic end groups (prepd. as benzenetetracarboxylic acid dianhydride-urea copolymer) were also prep'd. I was covalently bound on linear and **crosslinked**

(with divinylbenzene) poly(chloromethylstyrene) in the presence of pyridine to obtain water-sol. polymers and gel-type polymers. Covalent binding of I to surface-modified  $\text{SiO}_2$  was also realized. Low mol.-wt. and polymeric phthalocyanines were also fixed on  $\text{SiO}_2$ ,  $\text{Al}_2\text{O}_3$ , and charcoal. In addn., a low-mol.-wt Co phthalocyanine was encapsulated in the interior of  $\text{NaX}$  zeolite. All materials are efficient catalysts for the oxidn. of 2-mercaptoethanol. The mechanism employing water-sol. catalysts is discussed as a mononuclear complex coordinating  $\text{O}_2$  and thiol. Heterogeneous catalysts contg. monomeric phthalocyanines on the supports show enhanced activity with increasing dispersion. The proposed mechanism considers different reaction sites for the coordination of  $\text{O}_2$  and thiol.

IT 36344-62-4

(catalyst, immobilized on functionalized supports, for mercaptan oxidn.)

RN 36344-62-4 HCA

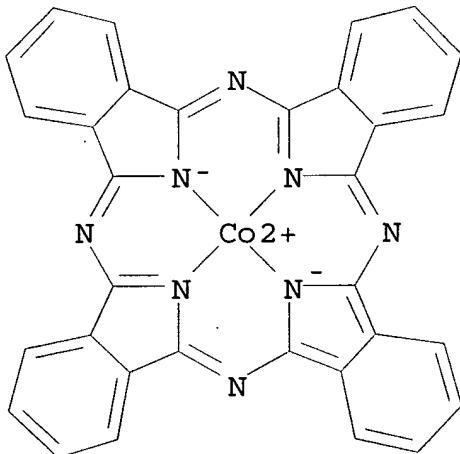
CN Cobalt, [29H,31H-phthalocyaninato(2-)-.kappa.N29,.kappa.N30,.kappa.N31,.kappa.N32]-, (SP-4-1)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 3317-67-7

CMF C32 H16 Co N8

CCI CCS



CC 51-6 (Fossil Fuels, Derivatives, and Related Products)  
Section cross-reference(s): 23, 38, 67

IT 3317-67-7 36344-62-4 79631-29-1

(catalyst, immobilized on functionalized supports, for mercaptan oxidn.)

L14 ANSWER 5 OF 10 HCA COPYRIGHT 2002 ACS

104:216603 Optical information recording material and recording method. Shirai, Hiroyoshi; Ito, Hiroshi (Japan). Jpn. Kokai Tokkyo Koho JP

60184887 A2 19850920 Showa, 13 pp. (Japanese). CODEN: JKXXAF.  
APPLICATION: JP 1984-41789 19840305.

AB The title materials have a supported recording layer, composed of polymd. or **crosslinked** product of phthalocyanine deriv. having vinyl groups, singly or as a compn. The recording method consists of formation of recorded bits having a transmittance or absorptivity different from that of the other areas, produced by modification of the mol. orientation or assocd. state, by means of pulse irradn. by recording light, and the bits may be formed with or without making depressions on the layer surface. The materials and method provide a high sensitivity, a high signal-to-noise (S/N) ratio in reprodn., and thermal stability of the materials. Thus, an acrylic polymer disk having concentric grooves (depth of 0.08 mm) was spin-coated with a dichloroethane soln. contg. an InBr phthalocyanine having p-CH<sub>2</sub>bCHO<sub>2</sub>CC<sub>6</sub>H<sub>4</sub>(CH<sub>2</sub>)<sub>2</sub>0<sub>2</sub>C substituents, pentatrierythritol tetraacrylate, and 2-tert-butylanthraquinone, to form a 0.08 .mu. layer, which was cured by irradn. with a Hg lamp. By pulse recording with semiconductor laser, the material required a 18 ns pulse for formation of bits having a 40 dB S/N ratio, vs. 140 for an InBr phthalocyanine-contg. control.

IT 101614-86-2

(laser recording materials contg., with high sensitivity and high signal-to-noise ratio in reprodn. and thermal stability)

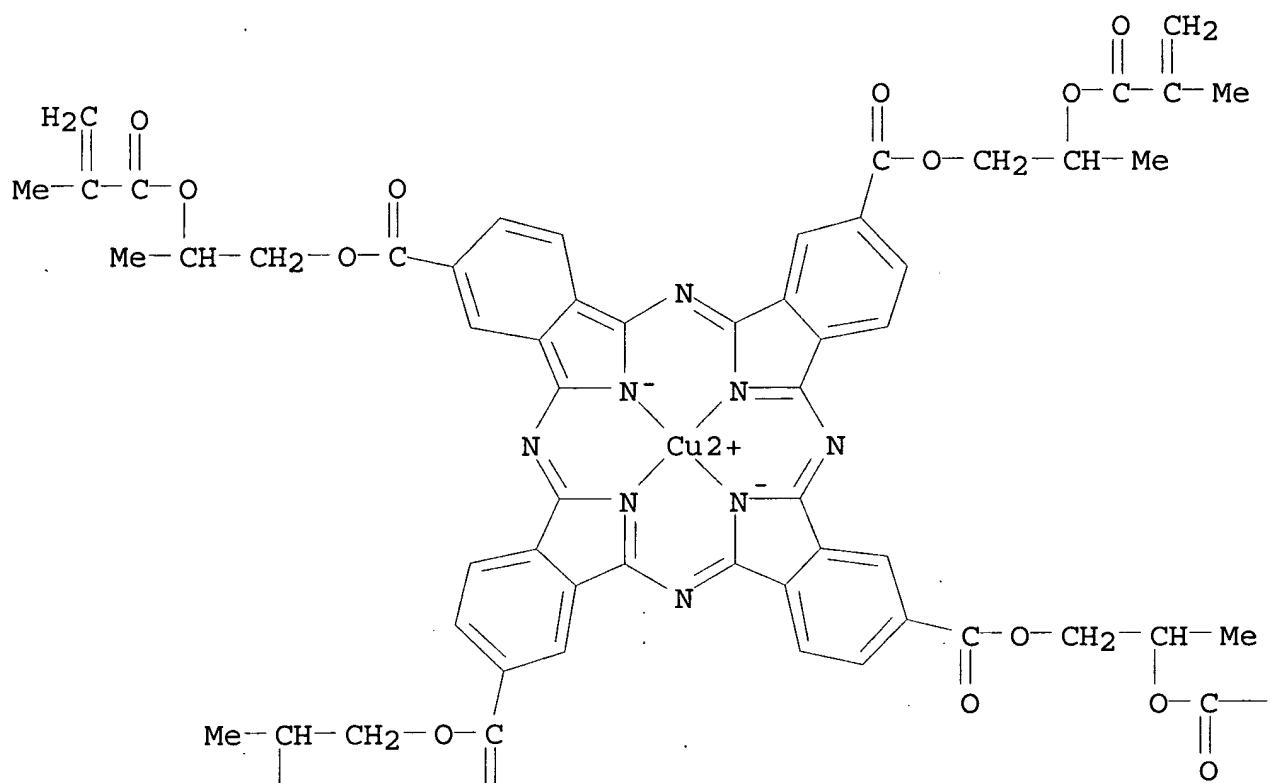
RN 101614-86-2 HCA

CN Copper, [tetrakis[2-[(2-methyl-1-oxo-2-propenyl)oxy]propyl] 29H,31H-phthalocyanine-2,9,16,23-tetracarboxylato(2-)- N29,N30,N31,N32]-, (SP-4-1)-, polymer with 2,2-bis[[ (1-oxo-2-propenyl)oxy]methyl]-1,3-propanediyl di-2-propenoate (9CI) (CA INDEX NAME)

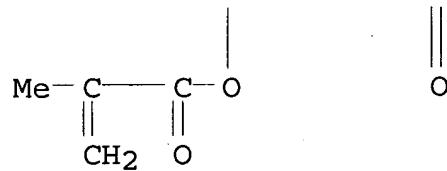
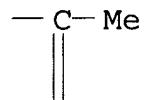
CM 1

CRN 101614-85-1  
CMF C64 H56 Cu N8 O16  
CCI CCS

PAGE 1-A



PAGE 1-B



PAGE 2-A

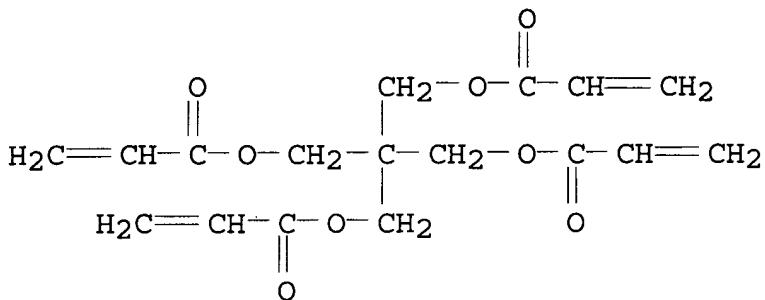


PAGE 2-B

CM 2

CRN 4986-89-4

CMF C17 H20 O8



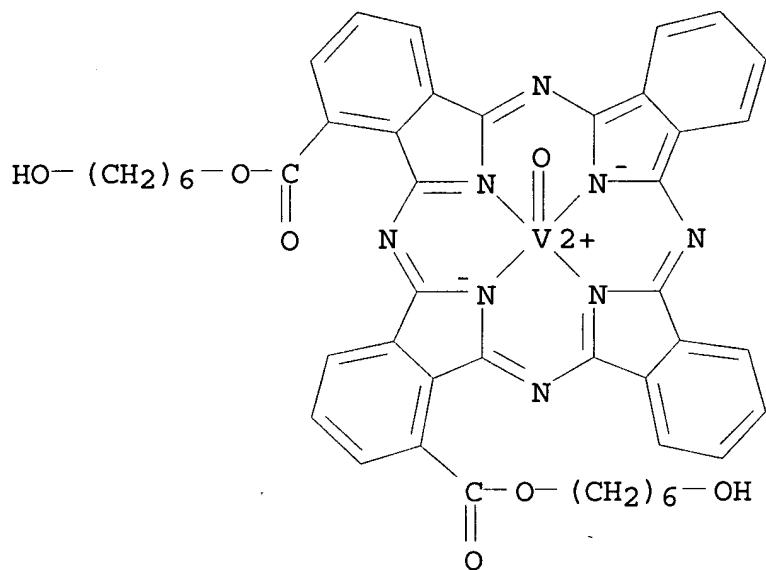
IC ICM B41M005-26  
 ICS C08F030-04; G11B007-24; G11C013-04  
 CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and  
 Other Reprographic Processes)  
 IT 93976-63-7D, derivs., polymer with pentaerythritol tetraacrylate  
**101614-86-2**  
 (laser recording materials contg., with high sensitivity and high  
 signal-to-noise ratio in reprodn. and thermal stability)

L14 ANSWER 6 OF 10 HCA COPYRIGHT 2002 ACS  
 104:59453 Laser optical recording. (TDK Corp., Japan). Jpn. Kokai  
 Tokkyo Koho JP 60124292 A2 19850703 Showa, 10 pp. (Japanese).  
 CODEN: JKXXAF. APPLICATION: JP 1983-233382 19831210.  
 AB Recorded bits having a reflectivity or transmittance different from  
 that of the surrounding area are formed by the effect of pulsed  
 light irradn. on a phthalocyanine deriv. polymer or a compn. contg.  
 the phthalocyanine deriv. polymer, polymd. through metal-contg.  
**crosslinking** agents, by changing the orientation or assocd.  
 state of the phthalocyanine mols. Typically the recorded bits are  
 on the same plane as the surrounding area. The method provides an  
 improved sensitivity and signal-to-noise ratio, increased  
 durability, and heat resistance. Thus, a mixt. of  
 3,3'-di(6-hydroxyhexyloxycarbonyl)vanadylphthalocyanine and  
 diisopropoxybis(acetylacetonato) titanate in 2:1 mol ratio was  
 coated on a PMMA disk and warmed at 40.degree. to form a 0.07 .mu.m  
 layer. The disk was recorded upon with a 830 nm 10 mW laser and the  
 record was read by using 1 mW laser. The min. pulse width for  
 writing was 9 ns. The signal-to-noise ratio was 59 dB, which was  
 unchanged by irradn. with a reading laser for 4 min. A control disk  
 not using the metal agent showed lower sensitivity [120 (ns)-1] and  
 signal-to-noise ratio (31 dB), which was degraded (19 dB) by irradn.  
**99544-56-6 99544-57-7 99553-09-0**  
**99562-13-7 99900-69-3**  
 (laser optical recording materials with recording layer of)  
 RN 99544-56-6 HCA  
 CN Vanadium, [bis(6-hydroxyhexyl) 29H,31H-phthalocyanine-1,8-  
 dicarboxylato(2-) -N29,N30,N31,N32]oxo-, (SP-5-13)-, polymer with  
 (T-4)-(ethyl 3-oxobutanoato-O1',O3)bis(2-propanolato)aluminum (9CI)

(CA INDEX NAME)

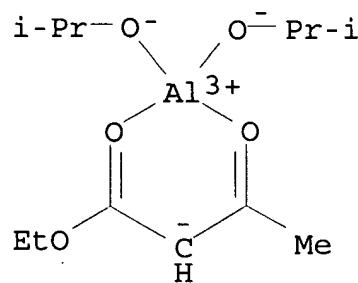
CM 1

CRN 95381-20-7  
 CMF C46 H40 N8 O7 V  
 CCI CCS



CM 2

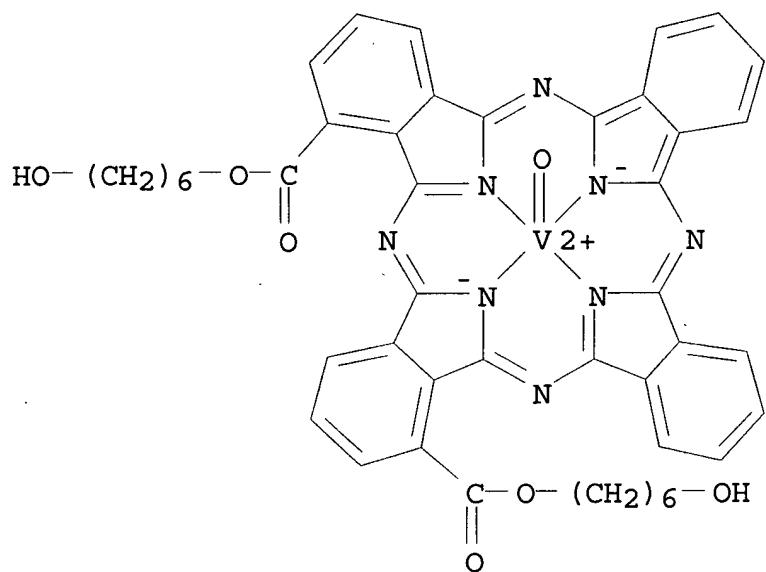
CRN 14782-75-3  
 CMF C12 H23 Al O5  
 CCI CCS



RN 99544-57-7 HCA  
 CN Zirconium, tetrakis(2,4-pentanedionato-0,O')-, (SA-8-  
 11''11''1'1''1'1'')-, polymer with (SP-5-13)-[bis(6-hydroxyhexyl)  
 29H,31H-phthalocyanine-1,8-dicarboxylato(2-)-  
 N29,N30,N31,N32]oxovanadium (9CI) (CA INDEX NAME)

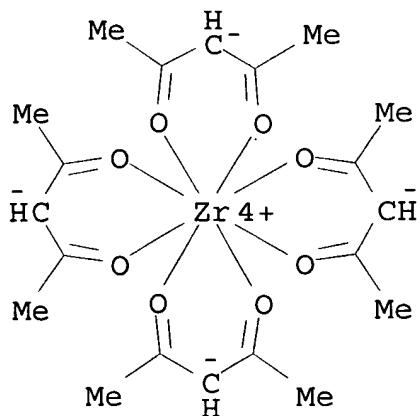
CM 1

CRN 95381-20-7  
 CMF C46 H40 N8 O7 V  
 CCI CCS



CM 2

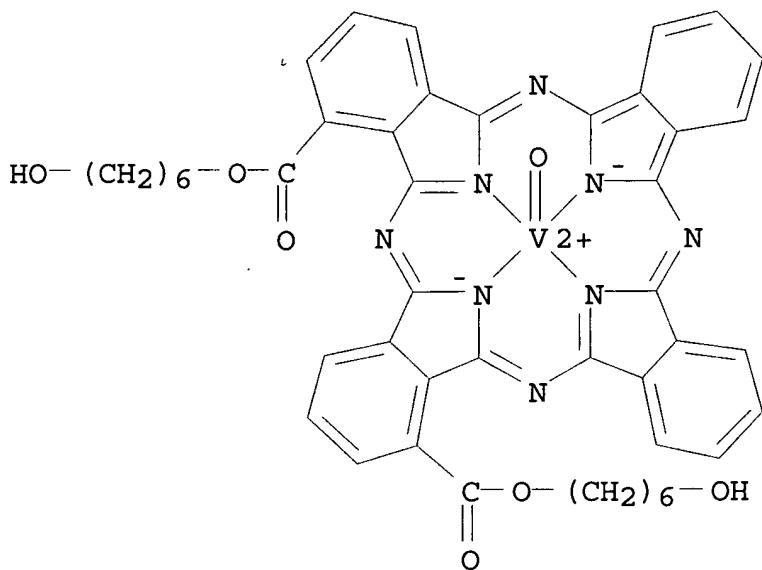
CRN 17501-44-9  
 CMF C20 H28 O8 Zr  
 CCI CCS



RN 99553-09-0 HCA  
 CN Titanium, bis(2,4-pentanedionato-O,O')bis(2-propanolato)-, polymer with (SP-5-13)-[bis(6-hydroxyhexyl) 29H,31H-phthalocyanine-1,8-dicarboxylato(2-)-N29,N30,N31,N32]oxovanadium (9CI) (CA INDEX NAME)

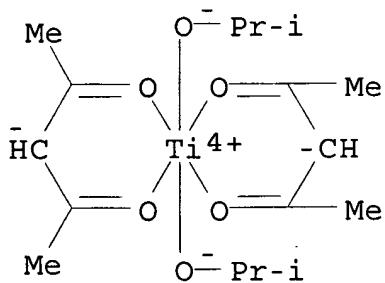
CM 1

CRN 95381-20-7  
 CMF C46 H40 N8 O7 V  
 CCI CCS



CM 2

CRN 17927-72-9  
 CMF C16 H28 O6 Ti  
 CCI CCS

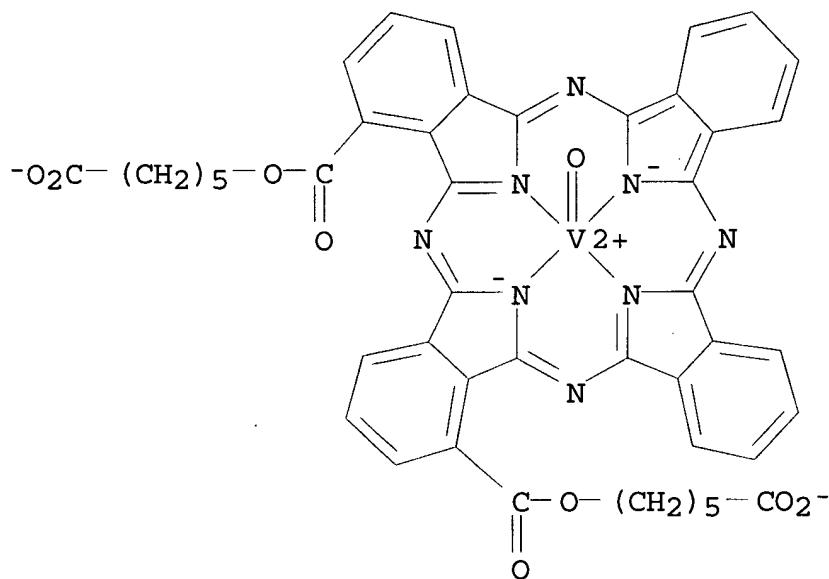


RN 99562-13-7 HCA

CN Titanium, bis(2,4-pentanedionato-O,O')bis(2-propanolato)-, polymer with (SP-5-13)-[bis(6-hydroxyhexyl) 29H,31H-phthalocyanine-1,8-dicarboxylato(2-)-N29,N30,N31,N32]oxovanadium and dihydrogen (SP-5-13)-[bis(5-carboxypentyl) 29H,31H-phthalocyanine-1,8-dicarboxylato(4-)-N29,N30,N31,N32]oxovanadate(2-) (9CI) (CA INDEX NAME)

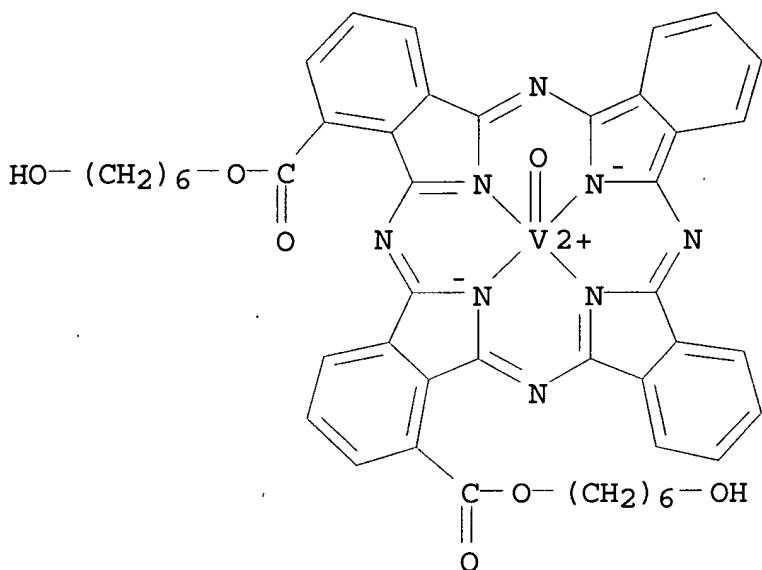
CM 1

CRN 95381-21-8  
CMF C46 H34 N8 O9 V . 2 H  
CCI CCS

● 2 H<sup>+</sup>

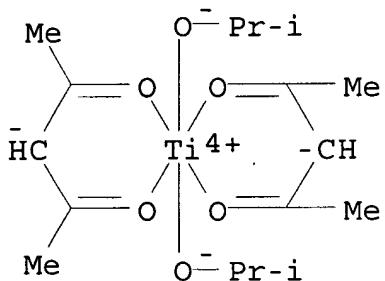
CM 2

CRN 95381-20-7  
CMF C46 H40 N8 O7 V  
CCI CCS



CM 3

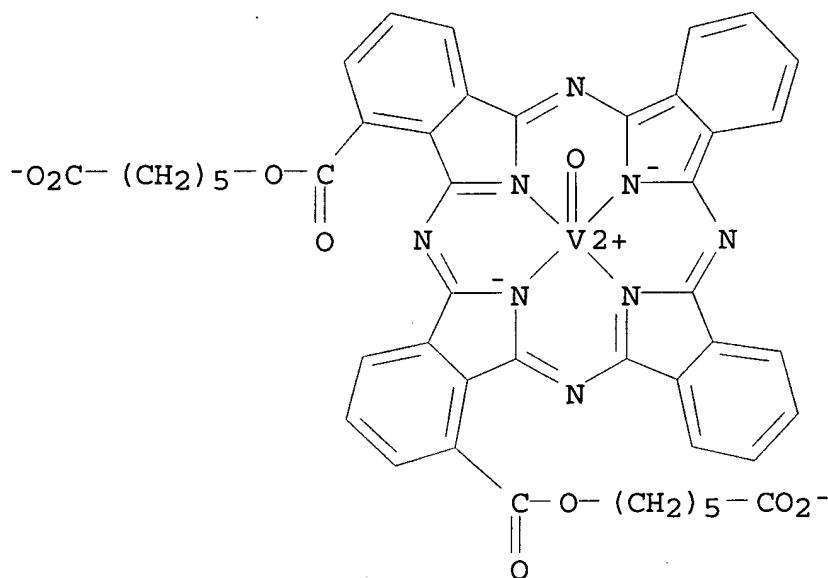
CRN 17927-72-9  
 CMF C16 H28 O6 Ti  
 CCI CCS



RN 99900-69-3 HCA  
 CN Titanium, bis(2,4-pentanedionato-O,O')bis(2-propanolato)-, compd.  
 with dihydrogen (SP-5-13) - [bis(5-carboxypentyl) 29H,31H-  
 phthalocyanine-1,8-dicarboxylato(4-) -N29,N30,N31,N32]oxovanadate(2-)  
 (1:1), homopolymer (9CI) (CA INDEX NAME)

CM 1

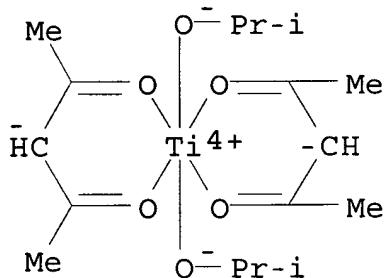
CRN 95381-21-8  
 CMF C46 H34 N8 O9 V . 2 H  
 CCI CCS



● 2 H<sup>+</sup>

CM 2

CRN 17927-72-9  
 CMF C16 H28 O6 Ti  
 CCI CCS



IC ICM B41M005-26  
 ICS G11B007-24; G11C013-04  
 CC 74-12 (Radiation Chemistry, Photochemistry, and Photographic and  
 Other Reprographic Processes)  
 IT 99544-56-6 99544-57-7 99553-09-0  
 99562-13-7 99900-69-3

(laser optical recording materials with recording layer of)

L14 ANSWER 7 OF 10 HCA COPYRIGHT 2002 ACS

100:139940 Studies on heat-resistant poly(metal phthalocyanine)imide copolymers. Achar, B. N.; Fohlen, G. M.; Parker, J. A. (Ames Res. Cent., NASA, Moffett Field, CA, 94035, USA). J. Polym. Sci., Polym. Chem. Ed., 22(2), 319-28 (English) 1984. CODEN: JPLCAT. ISSN: 0449-296X.

AB Several new poly(metal phthalocyanine)imide copolymers were prep'd. using 3,3',4,4'-benzophenonetetracarboxylic dianhydride (I), metal(II) 4,4',4'',4'''-phthalocyaninetetraamines (II) (metal = Cu, Co, Ni), p-phenylenediamine, 4,4'-methylenedianiline, and 9,9-bis(4-aminophenyl)fluorene. Thermal dehydrocyclization, after removal of solvent, was carried out by heating at 325.degree. in vacuo or at 350.degree. in N. The attractive feature of these polymers is their high thermooxidative and thermal stability. The polymer decompr. temps. of all the imide copolymers are >500.degree. in air and N atms. Another noteworthy property is their high char yield: 60-78% at 800.degree. in a N atm. Variation of the metal phthalocyanine concn. has a remarkable effect on the thermal stability and d.p. The most preferred molar proportion of the reagents II, diamine, and I is 1.25:7.5:10. These polymers may be useful in the prepn. of heat-resistant films and fibers.

IT 86442-16-2P 86442-17-3P 86442-18-4P  
86442-19-5P 86442-20-8P 86442-21-9P  
86442-23-1P 86442-24-2P 86458-11-9P

(prepn. and thermal properties of)

RN 86442-16-2 HCA

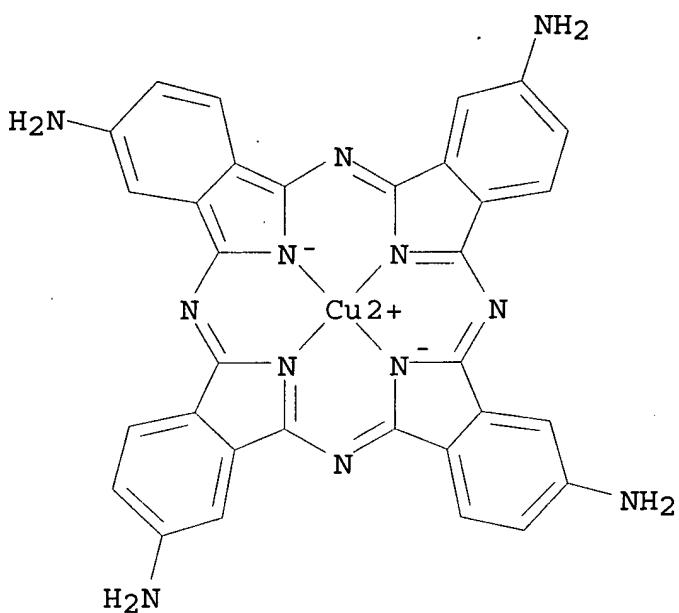
CN Copper, [29H,31H-phthalocyanine-2,9,16,23-tetraminato(2-)-N29,N30,N31,N32]-, (SP-4-1)-, polymer with 1,4-benzenediamine and 5,5'-carbonylbis[1,3-isobenzofurandione] (9CI) (CA INDEX NAME)

CM 1

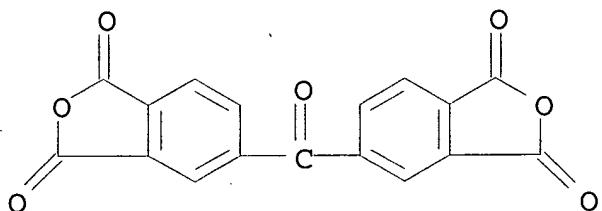
CRN 14654-63-8

CMF C32 H20 Cu N12

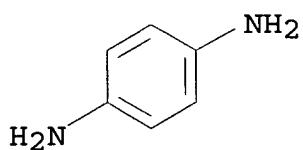
CCI CCS



CM 2

CRN 2421-28-5  
CMF C17 H6 O7

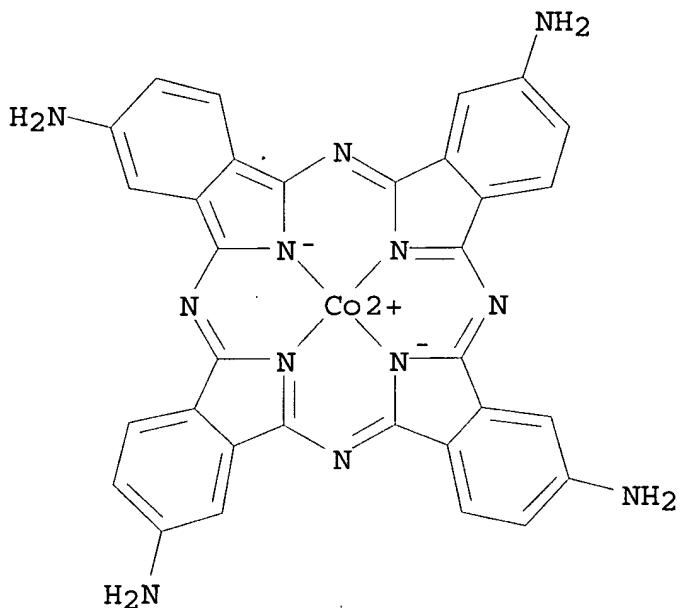
CM 3

CRN 106-50-3  
CMF C6 H8 N2RN 86442-17-3 HCA  
CN Cobalt, [29H,31H-phthalocyanine-2,9,16,23-tetraminato(2-)]

N29,N30,N31,N32]-, (SP-4-1)-, polymer with 1,4-benzenediamine and 5,5'-carbonylbis[1,3-isobenzofurandione] (9CI) (CA INDEX NAME)

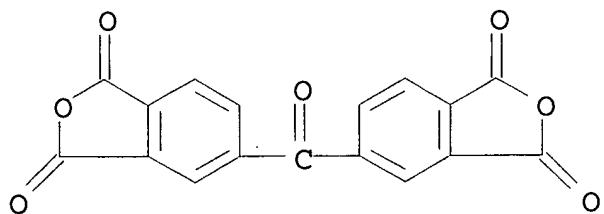
CM 1

CRN 27680-31-5  
 CMF C32 H20 Co N12  
 CCI CCS



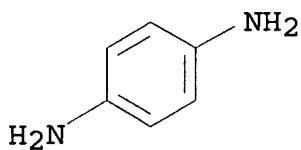
CM 2

CRN 2421-28-5  
 CMF C17 H6 O7



CM 3

CRN 106-50-3  
 CMF C6 H8 N2



RN 86442-18-4 HCA

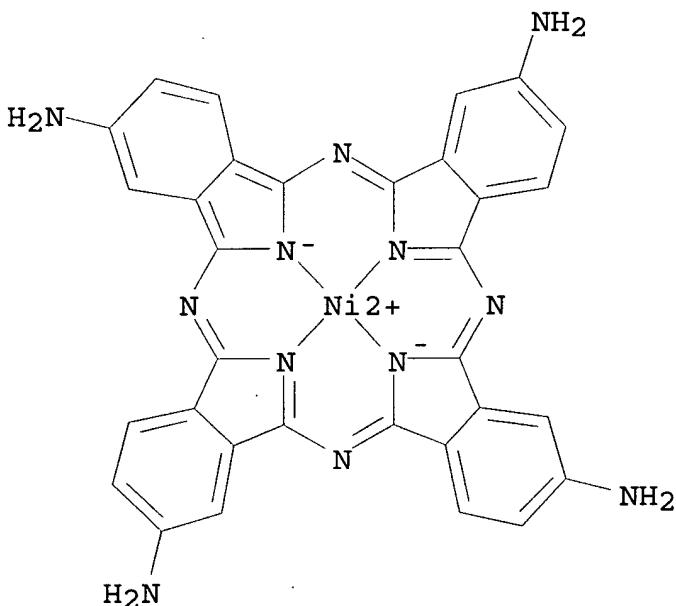
CN Nickel, [29H,31H-phthalocyanine-2,9,16,23-tetraminato(2-)-N29,N30,N31,N32]-, (SP-4-1)-, polymer with 1,4-benzenediamine and 5,5'-carbonylbis[1,3-isobenzofurandione] (9CI) (CA INDEX NAME)

CM 1

CRN 27680-33-7

CMF C32 H20 N12 Ni

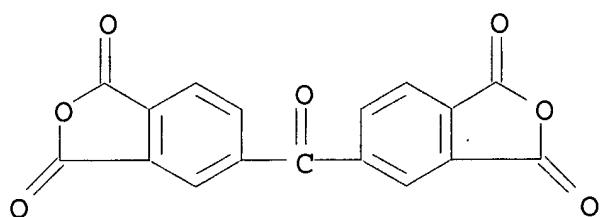
CCI CCS



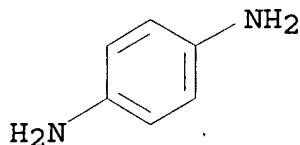
CM 2

CRN 2421-28-5

CMF C17 H6 O7

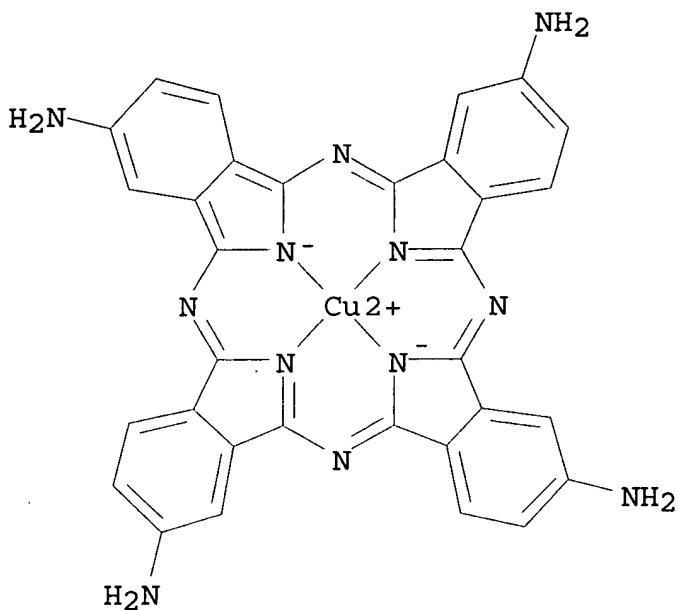


CM 3

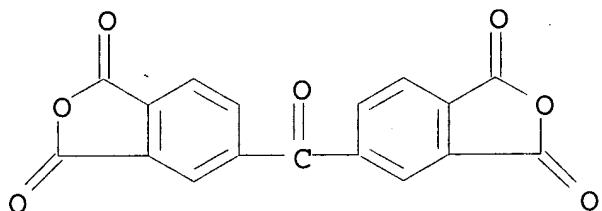
CRN 106-50-3  
CMF C6 H8 N2RN 86442-19-5 HCA  
CN Copper, [29H,31H-phthalocyanine-2,9,16,23-tetraminato(2-)-N29,N30,N31,N32]-, (SP-4-1)-, polymer with 5,5'-carbonylbis[1,3-isobenzofurandione] and 4,4'-methylenebis[benzenamine] (9CI) (CA INDEX NAME)

CM 1

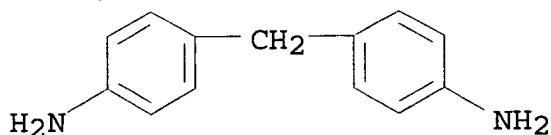
CRN 14654-63-8  
CMF C32 H20 Cu N12  
CCI CCS



CM 2

CRN 2421-28-5  
CMF C17 H6 O7

CM 3

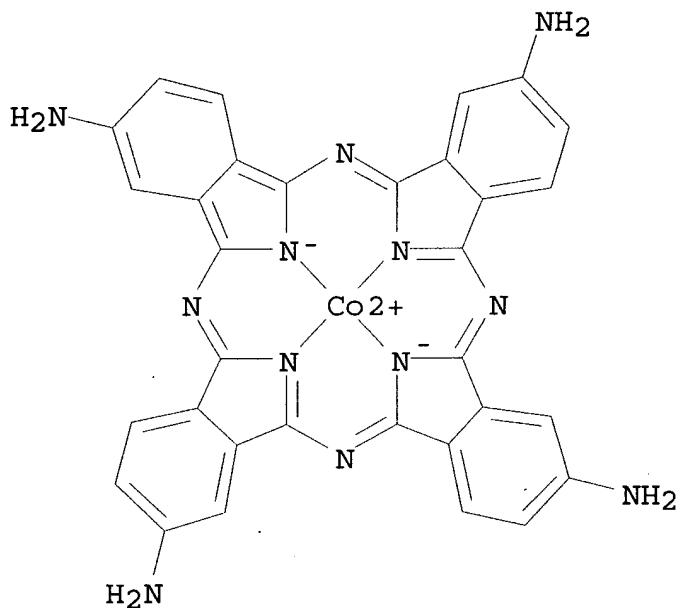
CRN 101-77-9  
CMF C13 H14 N2

RN 86442-20-8 HCA  
 CN Cobalt, [29H,31H-phthalocyanine-2,9,16,23-tetraminato(2-)-N29,N30,N31,N32]-, (SP-4-1)-, polymer with 5,5'-carbonylbis[1,3-

isobenzofurandione] and 4,4'-methylenebis[benzenamine] (9CI) (CA INDEX NAME)

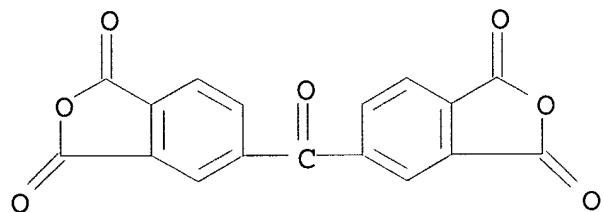
CM 1

CRN 27680-31-5  
 CMF C32 H20 Co N12  
 CCI CCS



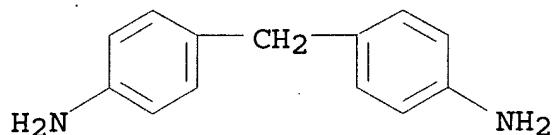
CM 2

CRN 2421-28-5  
 CMF C17 H6 O7



CM 3

CRN 101-77-9  
 CMF C13 H14 N2



RN 86442-21-9 HCA

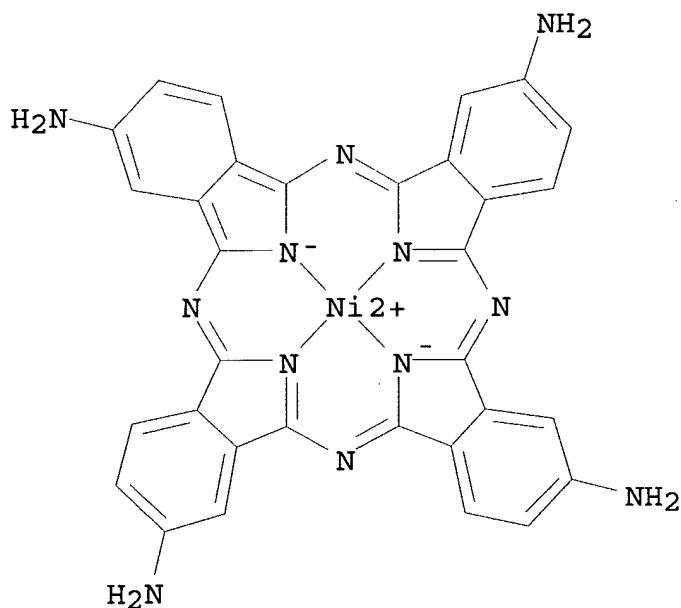
CN Nickel, [29H,31H-phthalocyanine-2,9,16,23-tetraminato(2-)-N29,N30,N31,N32]-, (SP-4-1)-, polymer with 5,5'-carbonylbis[1,3-isobenzofurandione] and 4,4'-methylenebis[benzenamine] (9CI) (CA INDEX NAME)

CM 1

CRN 27680-33-7

CMF C32 H<sub>2</sub>O N12 Ni

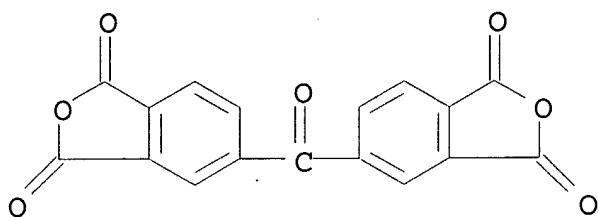
CCI CCS



CM 2

CRN 2421-28-5

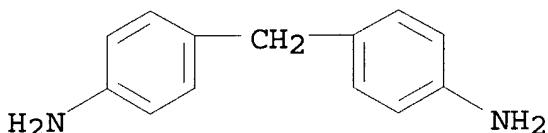
CMF C17 H<sub>6</sub> O<sub>7</sub>



CM 3

CRN 101-77-9

CMF C13 H14 N2



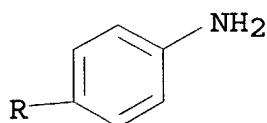
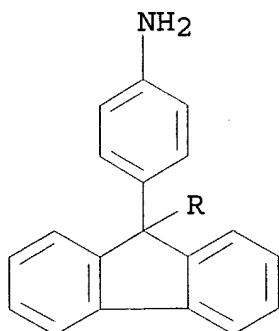
RN 86442-23-1 HCA

CN Copper, [29H,31H-phthalocyanine-2,9,16,23-tetraminato(2-)-N29,N30,N31,N32]-, (SP-4-1)-, polymer with 5,5'-carbonylbis[1,3-isobenzofurandione] and 4,4'-(9H-fluoren-9-ylidene)bis[benzenamine] (9CI) (CA INDEX NAME)

CM 1

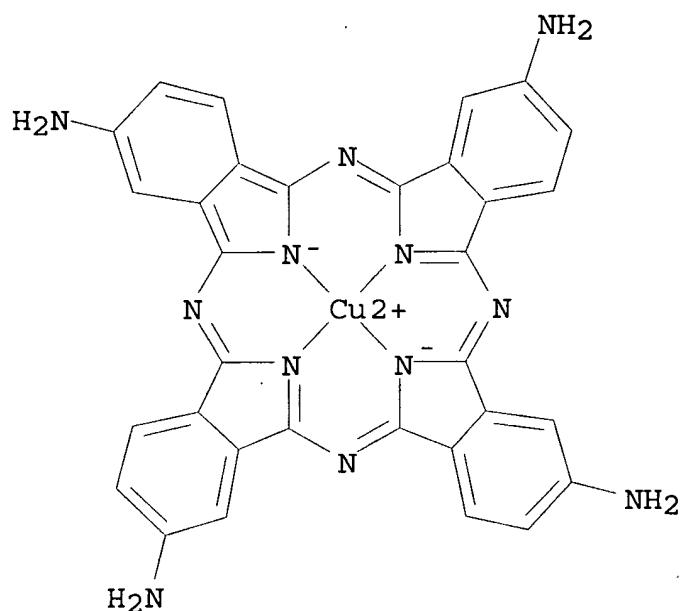
CRN 15499-84-0

CMF C25 H20 N2



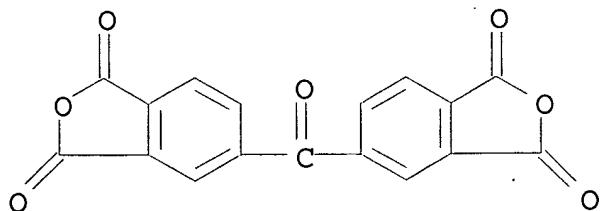
CM 2

CRN 14654-63-8  
 CMF C32 H20 Cu N12  
 CCI CCS



CM 3

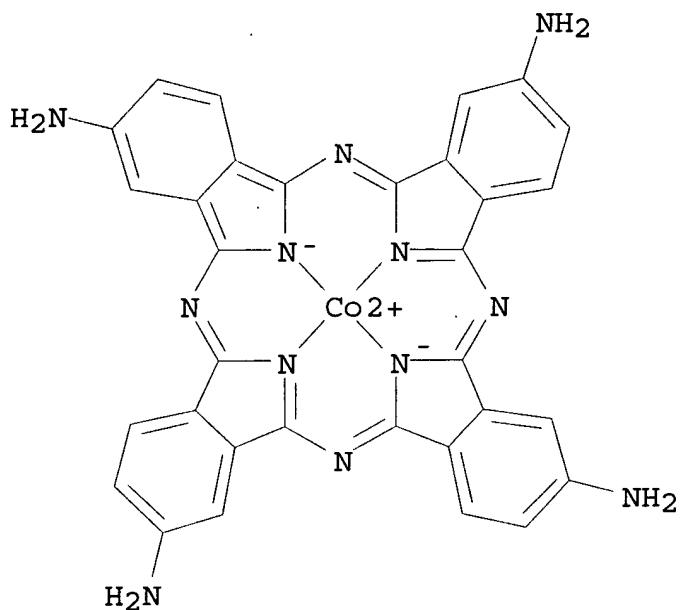
CRN 2421-28-5  
 CMF C17 H6 O7



RN 86442-24-2 HCA  
 CN Cobalt, [29H,31H-phthalocyanine-2,9,16,23-tetraminato(2-)-N29,N30,N31,N32]-, (SP-4-1)-, polymer with 5,5'-carbonylbis[1,3-isobenzofurandione] and 4,4'-(9H-fluoren-9-ylidene)bis[benzenamine] (9CI) (CA INDEX NAME)

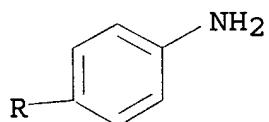
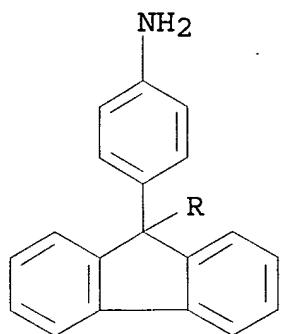
CM 1

CRN 27680-31-5  
CMF C32 H20 Co N12  
CCI CCS

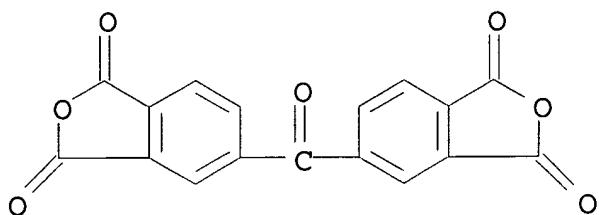


CM 2

CRN 15499-84-0  
CMF C25 H20 N2

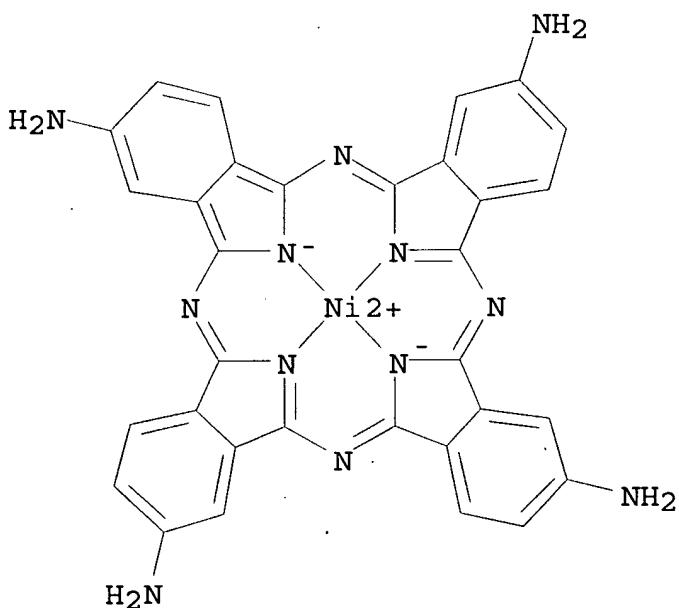


CM 3

CRN 2421-28-5  
CMF C17 H6 O7

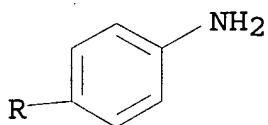
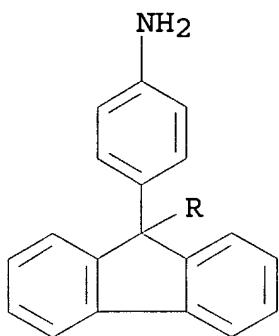
RN 86458-11-9 HCA  
 CN Nickel, [29H,31H-phthalocyanine-2,9,16,23-tetraminato(2-)-N29,N30,N31,N32]-, (SP-4-1)-, polymer with 5,5'-carbonylbis[1,3-isobenzofurandione] and 4,4'-(9H-fluoren-9-ylidene)bis[benzenamine] (9CI) (CA INDEX NAME)

CM 1

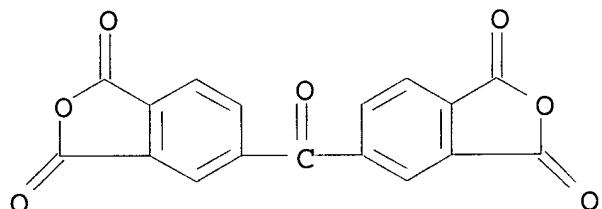
CRN 27680-33-7  
CMF C32 H20 N12 Ni  
CCI CCS

CM 2

CRN 15499-84-0  
CMF C25 H20 N2



CM 3

CRN 2421-28-5  
CMF C17 H6 O7CC 36-5 (Physical Properties of Synthetic High Polymers)  
Section cross-reference(s): 35IT Crosslinking agents  
(metal phthalocyaninetetraamines, for prepn. of heat-resistant polyimides)IT 86442-16-2P 86442-17-3P 86442-18-4P  
86442-19-5P 86442-20-8P 86442-21-9P  
86442-23-1P 86442-24-2P 86458-11-9P

(prep. and thermal properties of)

L14 ANSWER 8 OF 10 HCA COPYRIGHT 2002 ACS

94:22029 The effect of the ratio of ferrous chloride to pyromellitic anhydride on the electrochemical activity of iron polyphthalocyanine in the cathodic reduction of oxygen. Kreja, Ludwik; Plewka, Andrzej (Inst. Chem., Nicolaus Kopernikus Univ., Torun, Pol.). *Electrochim. Acta*, 25(10), 1283-6 (German) 1980. CODEN: ELCAAV. ISSN:

0013-4686.

AB Increase in the ratio of FeCl<sub>2</sub> to pyromellitic dianhydride [89-32-7] leads to an increase in the electrochem. activity of Fe polyphthalocyanine [36344-64-6] on the redn. of O. Vacuum heating also increases the electrochem. activity due to the **crosslinking** of polyphthalocyanine with the support via surface compds.

36344-64-6

(catalysts, for electroredn. of oxygen, effect of ferrous chloride-pyromellitic dianhydride on)

RN 36344-64-6 HCA

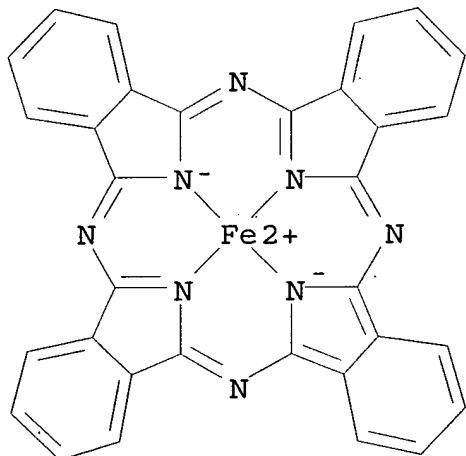
CN Iron, [29H,31H-phthalocyaninato(2-)-.kappa.N29,.kappa.N30,.kappa.N31,.kappa.N32]-, (SP-4-1)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 132-16-1

CMF C32 H16 Fe N8

CCI CCS



CC 72-3 (Electrochemistry)

IT 36344-64-6

(catalysts, for electroredn. of oxygen, effect of ferrous chloride-pyromellitic dianhydride on)

L14 ANSWER 9 OF 10 HCA COPYRIGHT 2002 ACS

87:104469 Oxygen electrodes for fuel cells. Meier, Hans; Tschirwitz, Ulrich; Zimmerhackl, Erwin; Albrecht, Wolfgang (Ger.). Ger. Offen. DE 2549083 19770505, 10 pp. (German). CODEN: GWXXBX. APPLICATION: DE 1975-2549083 19751103.

AB A fuel-cell electrode is prep'd. from a **crosslinked** Fe polyphthalocyanine [36344-64-6]-contg. active C and waterproofed carbon black. Thus, an electrode was prep'd. from 200 mg Teflon suspension-treated carbon black and 200 mg active C contg. 40 mg of **crosslinked** Fe polyphthalocyanine. The resp.

voltages of the electrode in 6N H<sub>2</sub>SO<sub>4</sub> at 0, 20, 40, 60, 80, and 100 mA/cm<sup>2</sup> were 1005, 840, 800, 755, 720, and 690 mV.

IT 36344-64-6

(catalyst, fuel-cell)

RN 36344-64-6 HCA

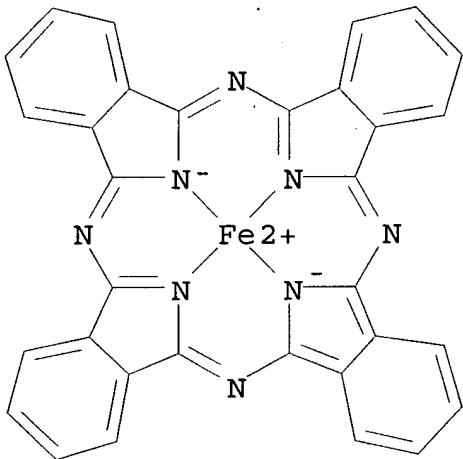
CN Iron, [29H,31H-phthalocyaninato(2-)-.kappa.N29,.kappa.N30,.kappa.N31,.kappa.N32]-, (SP-4-1)-, homopolymer (9CI) (CA INDEX NAME)

CM 1

CRN 132-16-1

CMF C32 H16 Fe N8

CCI CCS



IC C25B011-06

CC 52-2 (Electrochemical, Radiational, and Thermal Energy Technology)

IT 36344-64-6

(catalyst, fuel-cell)

L14 ANSWER 10 OF 10 HCA COPYRIGHT 2002 ACS

73:110900 Polyesters of metal phthalocyanineoctacarboxylic acid. Kramm, David E. (Grace, W. R., and Co.). U.S. US 3520950 19700721, 4 pp. (English). CODEN: USXXAM. APPLICATION: US 19661229.

GI For diagram(s), see printed CA Issue.

AB Green phthalocyanine polymers with high thermal stability were prep'd. by treating hydroxyl-terminated polyesters, prep'd. from HO(CH<sub>2</sub>)<sub>4</sub>OH, MeCH(OH)CH<sub>2</sub>OH (I) and (or) (HOCH<sub>2</sub>CH<sub>2</sub>)<sub>2</sub>O and maleic anhydride (II) and (or) adipic acid, with Cu phthalocyanineoctacarboxylic acid (III) and crosslinking the resulting unsat'd. prepolymer in the presence of Bz<sub>2</sub>O<sub>2</sub>. For example, a prepolymer (acid no. 38) prep'd. from 5 equivs. I and 4.5 equivs. II was heated with 0.43 equiv. III at 175-85.degree. for 2.5 hr to give a viscous, dark green polymer (acid no. 19.5, 0.6% Cu), which was treated with styrene and Bz<sub>2</sub>O<sub>2</sub> and cast into hard, brittle, tackfree films. III was prep'd. by condensing pyromellitic

anhydride with urea and CuCl in the presence of (NH<sub>4</sub>)<sub>2</sub>MoO<sub>4</sub> for 5 hr at 200 degree.

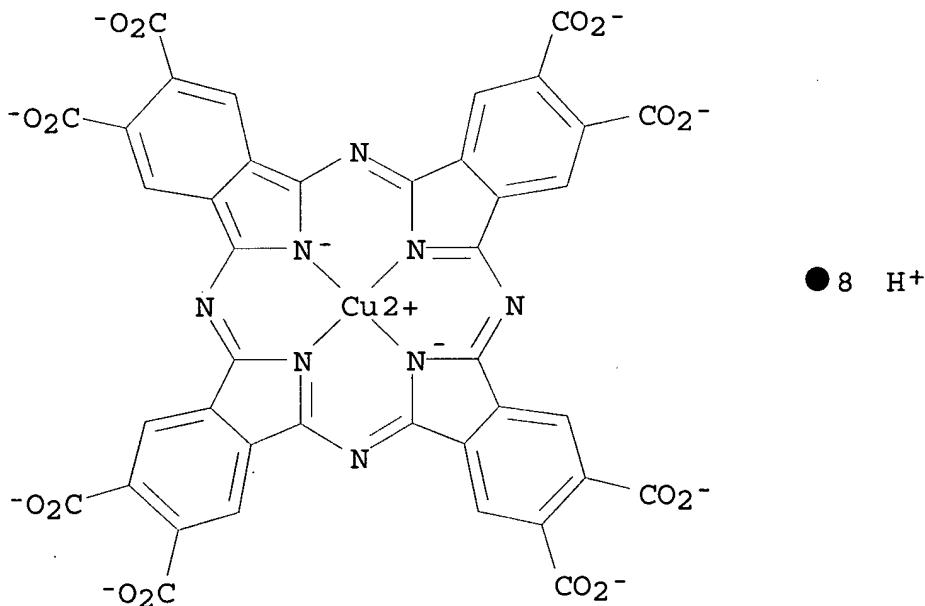
IT 28929-74-0P 28929-75-1P 28929-76-2P  
 28929-77-3P  
 (prepn. of)

RN 28929-74-0 HCA

CN Copper, [octahydrogen 2,3,9,10,16,17,23,24-phthalocyanineoctacarboxylato(2-)]-, polyester with 1,4-butanediol and maleic acid (8CI) (CA INDEX NAME)

CM 1

CRN 71667-32-8  
 CMF C<sub>40</sub> H<sub>8</sub> Cu N<sub>8</sub> O<sub>16</sub> . 8 H  
 CCI CCS



CM 2

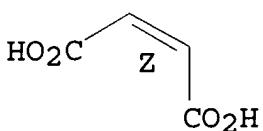
CRN 110-63-4  
 CMF C<sub>4</sub> H<sub>10</sub> O<sub>2</sub>

HO—(CH<sub>2</sub>)<sub>4</sub>—OH

CM 3

CRN 110-16-7  
 CMF C<sub>4</sub> H<sub>4</sub> O<sub>4</sub>

Double bond geometry as shown.



RN 28929-75-1 HCA

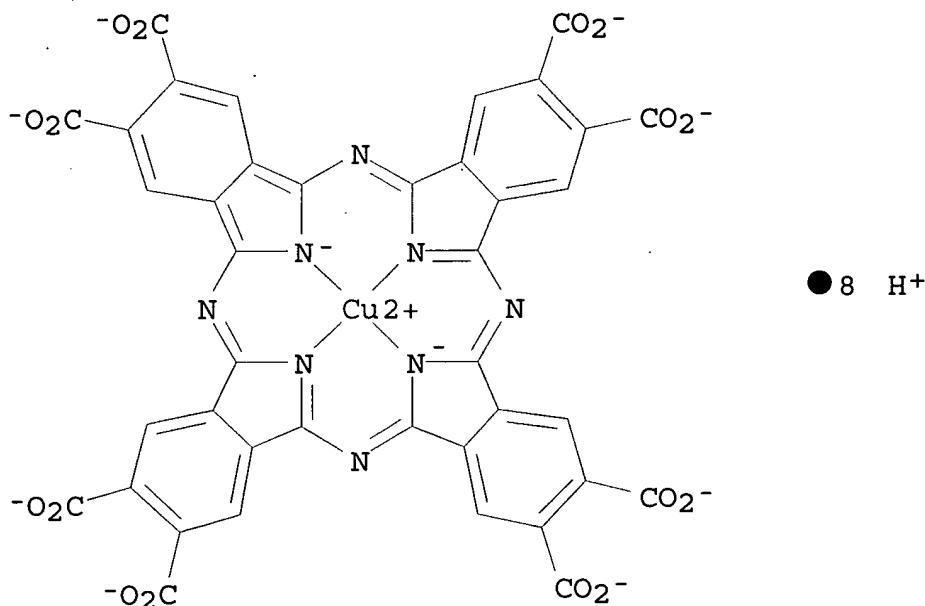
CN Copper, [octahydrogen 2,3,9,10,16,17,23,24-phthalocyanineoctacarboxylato(2-)]-, polyester with maleic acid and 1,2-propanediol (8CI) (CA INDEX NAME)

CM 1

CRN 71667-32-8

CMF C40 H8 Cu N8 O16 . 8 H

CCI CCS

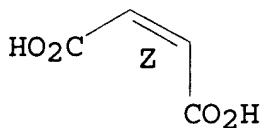


CM 2

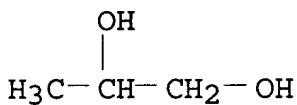
CRN 110-16-7

CMF C4 H4 O4

Double bond geometry as shown.

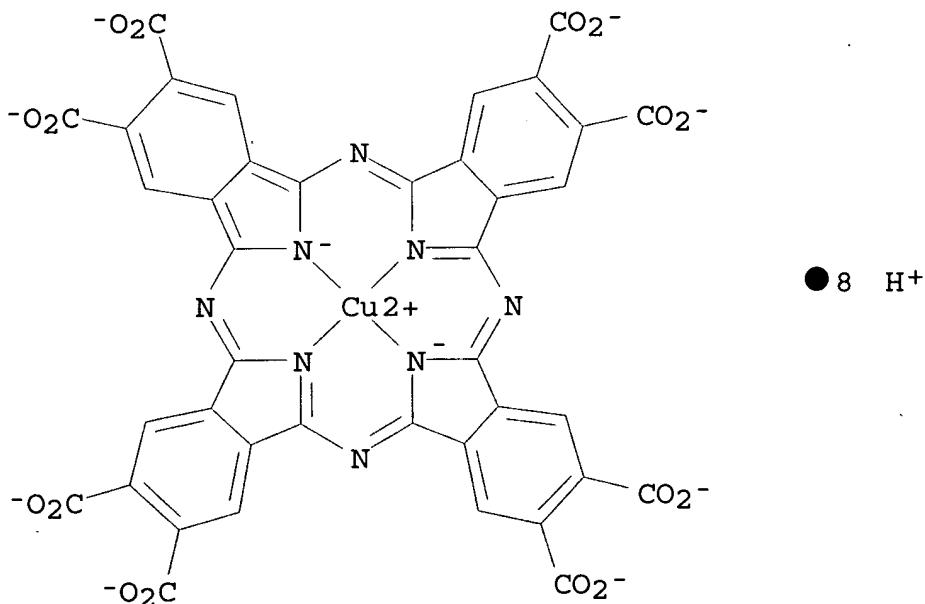


CM 3

CRN 57-55-6  
CMF C3 H8 O2

RN 28929-76-2 HCA  
 CN Copper, [octahydrogen 2,3,9,10,16,17,23,24-phthalocyanineoctacarboxylato(2-)]-, polyester with adipic acid, 1,4-butanediol, diethylene glycol, and maleic acid (8CI) (CA INDEX NAME)

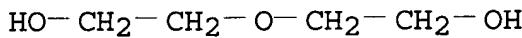
CM 1

CRN 71667-32-8  
CMF C40 H8 Cu N8 O16 . 8 H  
CCI CCS

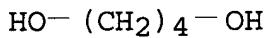
CM 2

CRN 124-04-9  
CMF C6 H10 O4

CM 3

CRN 111-46-6  
CMF C4 H10 O3

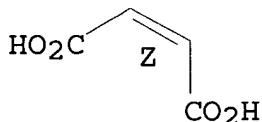
CM 4

CRN 110-63-4  
CMF C4 H10 O2

CM 5

CRN 110-16-7  
CMF C4 H4 O4

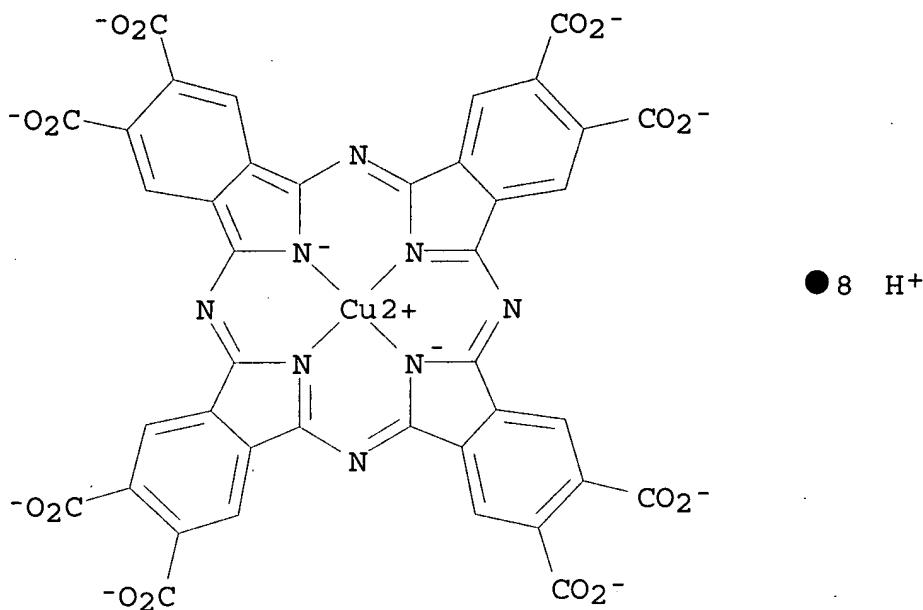
Double bond geometry as shown.



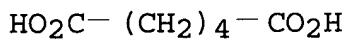
RN 28929-77-3 HCA  
 CN Copper, [octahydrogen 2,3,9,10,16,17,23,24-phthalocyanineoctacarboxylato(2-)]-, polyester with adipic acid, 1,4-butanediol and maleic acid (8CI) (CA INDEX NAME)

CM 1

CRN 71667-32-8  
CMF C40 H8 Cu N8 O16 . 8 H  
CCI CCS



CM 2

CRN 124-04-9  
CMF C6 H10 O4

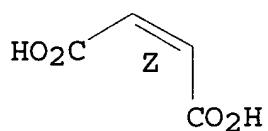
CM 3

CRN 110-63-4  
CMF C4 H10 O2

CM 4

CRN 110-16-7  
CMF C4 H4 O4

Double bond geometry as shown.



IC C08F

NCL 260868000

CC 40 (Dyes, Fluorescent Whitening Agents, and Photosensitizers)

IT 15630-49-6P 28929-74-0P 28929-75-1P

28929-76-2P 28929-77-3P

(prepn. of)